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THE TREATMENT OF SUMMER DIARRHEA.

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For the treatment of summer diarrhea it it is not possible to do more than present certain general rules. A specific case is a law unto itself and must be studied in accordance with its own particular needs; but there are certain definite suggestions which, if carefully carried out, will give satisfactory results in restoring to health the victims of this disease, which is so largely responsible for the enormous yearly infant mortality.

In brief the treatment is:

1. To clean out the gastrointestinal tract as quickly as possible.

2. To allow the digestive apparatus an adequate rest.

3. To remove if possible the cause of the illness so as to prevent a recurrence.

Success depends upon quick recognition and prompt treatment—that is to say, the immediate stopping of all food, the administration of a dose of castor oil, and the giving of an enema. A thorough cleaning out of the intestinal tract is most effectively accomplished by ordering not less than two drams of castor oil for an infant of six months. It is not desirable to prepare the oil in any way, although it will be more pleasant for the patient if given cold. If the infant is suffering from nausea, it is safer to give only a dram, but to repeat the dose in an hour. Castor oil has a well-known advantage over other purgatives, since it exerts a decided constipating effect after the initial purgative action. However, in vomiting cases, calomel in divided doses is given in preference to castor oil. The stock tablet triturate of calomel should not be ordered, but a prescription written so that the patient will receive a freshly compounded powder of calomel and soda in the dose of one-tenth of a grain of calomel every half-hour until ten doses have been taken. If by the time the powders have been consumed the vomiting has ceased, a drachm of castor oil may be given. If, on the other hand, the vomiting persists after all the powders have been taken, it is better to stop temporarily all medication by mouth. It has been our experience that distinctly better results can be obtained from castor oil than by the use of calomel. One of the most common mistakes made is to feed the patient following the administration of a dose of castor oil. No food of any kind should be given for at least twenty-four hours following the oil. If the mother has made this mistake a second dose of castor oil must be ordered.

The diet for the first twenty-four hours following the purgative consists of nothing but plain boiled water. This rule applies to babies of all ages, whether breast-fed or bottle-fed. Although plain water is to be preferred, if there is reason to think the mother may not obey the directions, believing that every time her baby cries it is from hunger, it will be safer to order barley

water. It is remarkable how commonly mothers overestimate the nutritive value of barley water. It is not unusual in dispensary practice to find infants who had been ordered barley water with instructions to the mother to bring them back the following day, but instead they were brought back two or three weeks later in a starving condition, having been fed on nothing but barley water, the mother believing her baby had been receiving a sufficiently nourishing food.

If the infant is vomiting it is best to give the stomach an absolute rest by withholding even water; but if there is simply nausea, water may be given in small quantities, a dram or two drams, at frequent intervals. If this is retained, the quantity may be gradually increased and the intervals lengthened. In all cases except those in which the stomach is affected water should be given freely—for instance, a four-months-old baby may have six ounces every three hours.

From this point on the treatment will differ, depending upon whether the baby is bottle-fed or breast-fed. First, we will consider the treatment of the breast-fed baby. It is exceptional for an infant whose mother nurses it to develop summer diarrhea, but when it does occur it is usually due either to too frequent nursing or to allowing the baby "tastes" of table food. It is a common belief that simply a "taste" of table food cannot possibly harm the baby, yet there can be no doubt that an enormous number of lives are sacrificed annually by this pernicious practice. Parents must be taught that every time the baby cries it is not necessarily from hunger, but more frequently from thirst, and that instead of feeding the baby it should be given a drink of water. Instruct the mother that all water for the baby must be boiled. During the twenty-four hours in which the baby is receiving only water the mother must not allow her breasts to become too full of milk. They must be emptied as often as it is necessary by means of a breast pump. After the lapse of twenty-four hours, in most cases, breast milk may be allowed, but at first in only very small amounts. The most satisfactory plan is to give the baby every four hours several ounces of water, depending upon its age, then follow immediately by nursing at the breast for two minutes. As the baby's condition improves the length of time allowed for each nursing may be gradually increased in most cases, until by the end of the week the baby will be permitted to nurse for fifteen minutes every four hours. If the four-hour interval of nursing is continued, with plenty of water between feedings, there will be very little likelihood of a return of the diarrhea. The mother must understand the importance of personal hygiene—the daily walk out-of-doors, freedom from worry, abundance of water (two quarts daily), avoidance of tea drinking, and the necessity of eating plenty of good nourishing food. Granted the real coöperation of the mother is obtained, a case of summer diarrhea in a breast-fed baby almost always makes a prompt recovery.

It is sometimes possible to procure for a bottle-fed baby with summer diarrhea, breast milk obtained from a nursing mother who has more than enough milk for her own child. The milk is obtained by the use of a sterilized glass breast pump. Whenever it is possible the milk should be procured just before the mother nurses her own baby, as the first milk does not contain such a high percentage of fat as does the last milk from the breast. The lower the percentage of fat the easier it will be to digest, and therefore the greater likelihood of its agreeing with the sick baby. At first one-half ounce of breast milk is added to a sufficient number of ounces of boiled water in the bottle, and a feeding of this mixture given every three hours. The next day the quantity of breast milk may be increased to one ounce at each feeding. If the quantity of breast milk be sufficient, it is desirable to remove some of the cream by skimming. This procedure will only be necessary for the first day or two, as from

that time on the cream may be gradually allowed to remain.

For the bottle-fed baby the treatment is much more difficult, but there are several methods of procedure which if carefully carried out will give good results. The secret of success depends upon scrupulous attention to every detail; in these cases there are no details which are unimportant. If there is no trained nurse in attendance, it is the physician's duty to write full and explicit directions for the mother, otherwise, owing to her anxiety, she is very apt to make mistakes.

In the treatment of an artificially fed infant suffering from summer diarrhea, the essential thing to remember is not to return too quickly to cow's milk—a common mistake, often attended with serious consequences. Milk should be withheld until the fever has subsided, and the stools have assumed a normal appearance. This always requires at least three days, and frequently it is desirable to keep the infant off of milk entirely for a week.

At the end of the twenty-four hours of water diet the infant is put on a thin barley water. If there is no vomiting he is allowed as much barley water as he will take every three hours. The proper method of preparing barley water is to add two tablespoonfuls of washed pearl barley to a quart of water and boil for three hours. Additional water must be added so that at the end of the three hours there will still be a quart. It is then strained and kept on ice. Barley water must be made fresh daily. If the infant refuses to take the barley water it can be made more palatable by the addition of saccharin, in the proportion of one grain to a quart of the barley water. Eventually the baby will tire of the barley water, so that it is well to vary the diet. Other foods which may be given are rice water, beef juice, broths, arrowroot gruel or a sugar solution, such as a five-per-cent solution of a reliable preparation of malt sugar. Rice water is made in exactly the same manner as the barley water, simply substituting the same quantity of rice in place of the barley. In making albumen water (the white of one egg to a pint of water) it is important that only very fresh eggs be used, as stale eggs will cause putrefaction in the intestinal tract. Where it is important to increase the nourishment as much as possible, the white of the egg may be added to the rice or barley water. Beef juice, a half to one ounce, which may be given once a day, should be made at home and only from fresh carefully selected beef. Broths in the small quantities in which they can be used have little nutritive value, and may have a slight laxative effect. However, one ounce of chicken or mutton broth may be added to each feeding of rice or barley water, simply to vary the diet, and this small quantity can do no harm.

Some physicians recommend the use of whey during this period of the treatment, but we believe it should not be used, as it has the same disadvantages as milk, being an excellent culture medium for bacteria.

Some or all of these foods, with the exception of the whey, may be used, alternating at different feedings or on different days until the stools have cleared up and the temperature has become normal; then, and then only, can milk be added to the feedings.

The attending physician must give careful attention to the question of procuring a clean milk for the patient. The word of the driver of a milk wagon is not sufficient; further investigation must be made. The important points in the selection of a milk for infants are: first, that it should be clean; second, that it should have a uniform percentage of fat, which must not be high; and third, that the milk must come from tuberculin-tested cattle. Whenever possible "certified" milk should be obtained —that is, milk certified to by a milk commission holding membership in the American Association of Medical Milk Commissions.

The doctor should give detailed instruction as to the care of the milk in the home; even such obvious directions as, for example, that the milk as soon as it arrives

should be placed immediately on ice; that milk must never be left uncovered; and that every utensil which will touch the milk must first be boiled.

During hot weather even certified milk will be rendered a safer food by pasteurization. It is best to pasteurize the milk in the final container, which, of course, is the baby's bottle. This means that home pasteurization is to be preferred to commercial pasteurization. The most satisfactory method of pasteurizing milk at home is by the use of the Freeman pasteurizer. In the event of a Freeman pasteurizer being unobtainable, we recommend the following very simple, yet safe, method for pasteurizing the baby's food: Secure a large kettle with a lid—that is, one sufficiently large to hold all the bottles for a day's feedings and one gallon of water. Pour a gallon of water in the empty kettle and place it on the fire to boil. As soon as the water boils, the kettle must be removed from the fire and placed on a table with a plain wooden top. After it has stood precisely ten minutes uncovered, all the nursing bottles containing the day's feedings are placed upright in the kettle. The lid is then replaced, and the milk allowed to pasteurize for thirty minutes. At the end of that period the bottles are removed, cooled under running water, and placed in the refrigerator.

If certified milk cannot be obtained, all the milk used for the mixture should be boiled for five minutes with frequent stirring. The milk mixture should then be prepared, poured into the feeding bottles, and then cooled by standing the bottles in running water.

In deciding how to start the patient on milk it is important to bear in mind the degree of digestibility of the different elements of milk. Arranged in the order of their digestibility they are: first, proteids; second, sugar; third, fat. We therefore endeavor to give the baby a food rich in proteid, containing only a moderate amount of sugar and very little fat. These requirements can best be secured by a mixture of skimmed milk and water. The skimmed milk is obtained by leaving the milk bottle containing the fresh milk on the ice for two hours, and then removing all the cream from the top by means of a sterile Chapin dipper. At the start only a very small quantity of skimmed milk should be given, and the amount gradully increased as the baby's digestive apparatus accustoms itself to the food. At first, only one-half ounce of skimmed milk is added to each feeding. The diluent used may be barley or rice water, but preferably a four-per-cent malt sugar solution. Then every third day, providing the patient's condition is satisfactory, another half-ounce of skimmed milk may be added, leaving out a corresponding amount of the maltose solution. In this manner the skimmed milk may be worked up to the amount desired, and when this has been reached the food may be further strengthened by the gradual substitution of whole milk in place of the skimmed milk. This also is accomplished by replacing every third day one-half ounce of skimmed milk with a half-ounce of whole milk.

In addition to the dietetic treatment of summer diarrhea the bacilli lactis Bulgarici may be given as an intestinal antiseptic. When the bacilli lactis Bulgarici are administered in a sufficient dose, it is believed there is a change in the bacterial flora of the intestines which results in the elimination of the bacteria causing fermentation and putrefaction. This action is shown by the improvement in the appearance and odor of the stools. If tablets composed of these organisms are used, they must be fresh, and kept cold in a refrigerator. If the tablets have been standing for a week on the shelves in a drug store they will contain very few living bacilli, and as a result when given to the patent will have no therapeutic value. It is best to obtain the tablets direct from the manufacturer, and have them placed immediately in the ice-box. They are frequently given in too small doses; not less than three tablets should be given every three or four hours. As they dissolve readily, and do not alter the taste

of the food, the tablets are put in each bottle just before it is given to the baby.

The medicinal treatment of summer diarrhea is of little value compared to the dietetic management of the case. It is well to remember that in the ordinary case of moderate severity there need be no haste to check the number of bowel movements, which is nature's method of establishing drainage from the intestinal tract. However, if the number of bowel movements is excessive, bismuth may be ordered, preferably in the form of the subcarbonate. Bismuth subcarbonate is given in ten-grain doses every three hours, and is particularly indicated in those cases which occasionally vomit. Drugs are of little use as intestinal antiseptics. Of those which have been recommended, we consider bismuth salicylate to be the most desirable. It may be given in doses from one to three grains, depending upon the age, in combination with the bismuth subcarbonate.

Under no circumstances should any drug be given to check the bowels until the gastrointestinal tract has been thoroughly emptied. This applies especially to the use of opium, which, if given while the stools are still offensive, may do a great deal of harm by checking the elimination of poisonous materials. However, when properly used, opium is of great service in many cases. If there is much tenesmus accompanied with severe pains, opium is indicated. It may be administered in the form of tinctura opii camphorata, 4 minims, for a six-months' old baby; or as pulvis ipecacuanhæ et opii, ¼ grain, for an infant a year old. These doses may be repeated in three hours. When prompt action is imperative, morphinæ sulphas, 1/200 to 1/100 grain, for a baby one year old, is given hypodermically. This may be combined with atropinæ sulphas, 1/600 grain, if the patient is having profuse watery movements. Morphine and atropine are also indicated if the patient develops convulsions.

Severe cases of summer diarrhea will require stimulation. Brandy may be given by mouth in doses of ten to fifteen minims to a six-months' old infant. It should be well diluted with water, and repeated every three hours. Brandy is especially valuable early in the attack when the patient is receiving little nourishment. Its use must not be continued over too long a period. Brandy is used in preference to whisky in cases of summer diarrhea. The most effective stimulants are caffeinæ sodio-benzoas in doses of ¼ grain, and camphor in oil 3 to 5 minims, for a baby of one year. These drugs are given subcutaneously. Tincture of strophanthus is a good stimulant, but cannot be recommended on account of its tendency to increase the number of bowel movements, while digitalis by mouth is contraindicated, as it is very apt to upset the stomach.

At the doctor's first visit to a case of summer diarrhea an enema is ordered so as to empty the lower bowel, and by stimulating peristalsis assist the small intestine to rid itself of offending material. The initial enema consists simply of warm soapy water. Six hours after this enema the colon should be irrigated with a warm normal salt solution. It is wise for the physician to give the first irrigation himself in order that the procedure be properly carried out. The technique consists in placing the infant on its left side with the legs flexed and the hips somewhat elevated by a pad. The normal salt solution should be heated to 96° to 100° F., unless the patient has a high fever, when it can be used at a temperature of 85° to 90° F. The warm salt solution is placed in a fountain syringe, and the bag held just above the level of the patient's body. The bag must not be elevated high above the infant, as it is important that the solution should flow slowly into the bowel. The small hard-rubber rectal tip which comes with the fountain syringe is selected, and after being lubricated it is inserted about an inch in the rectum and the solution allowed to run. By this technique the colon will be just as thoroughly irrigated as by the use of a long catheter, and with much less discomfort to the patient. The irrigation is continued

until the returning solution is clear. Colon irrigations are indicated early in the disease in order to thoroughly cleanse the bowel, and especially so if the movements are offensive and contain mucus; also in cases in which there is colic, or abdominal distention, or high fever. They are contraindicated in cases having much tenesmus and many movements. The use of colonic irrigations is often overdone, their use being too frequent and too long continued. Because of the persistence of mucus in the stools, the mistake is made of continuing the irrigations for weeks, when, as a matter of fact, the excessive secretion of mucus is generally due to the repeated irrigations, and with their discontinuance the mucus will usually disappear. It is not advisable to give more than two colon irrigations a day, and after the first day or two one irrigation will be sufficient; and even that is discontinued in a few days.

In regard to antiseptic or astringent solutions by rectum, we believe they present no advantages over the normal salt solution. If it is desired a rectal injection of a solution of protargol in the proportion of ½ grain to an ounce of boiled water may be given once a day.

In severe cases in which there has been a large loss of fluid from the body by continued purging and vomiting, the subcutaneous injection of normal salt solution in small quantities is indicated. Emphasis must be laid on the fact that only small quantities should be introduced at a time. Three or four ounces will be readily absorbed, and may be repeated in six hours if necessary. The only apparatus required for a hypodermoclysis is a glass funnel, a short piece of rubber tubing, and a hypodermic needle. The procedure must, of course, be conducted under a rigid aseptic technique.

Up to the present time the serum treatment of summer diarrhea cannot be recommended.

The general medical care is very important. Fresh air is imperative, and moving air is much more beneficial than still air. When the patient is indoors, an electric fan may be so placed as to keep the air in the room in active circulation. The baby must be kept in the coolest place available. It may with advantage sleep out-of-doors at night, protected from mosquitoes.

On very warm days the clothing should consist of nothing but a diaper and a thin, cotton gauze, short-sleeved, low-necked shirt.

Bathing is very beneficial. The patient is given a warm tub bath with the water at a temperature of 95° to 98° F., for five minutes, night and morning. When the fever is high the temperature of the water may be reduced to 90° F., and an ice-cap applied to the head. The tub bath has a much more soothing effect than has a sponge bath.

Cases of summer diarrhea are often overtreated; especially are they given too much medicine. Whenever medication is called for, it should be given at the same time as the feedings, so as to disturb the baby as little as possible. Rest is an essential requisite of the treatment. We strongly urge the nurse to avoid handling the patient as much as possible, and we do not permit her to wash out the baby's mouth unless there is a stomatitis.

In the handling of cases of summer diarrhea, the single-service diaper will be found more sanitary than the ordinary diaper which must be washed. A very satisfactory single-service diaper can be made from absorbent paper, gauze, and cotton. The diaper should be changed as quickly as it becomes soiled, and the soiled diaper, if not at once destroyed, must be placed in a covered receptacle. The nurse should avoid handling the soiled diaper as much as possible so as to lessen the chance of reinfecting the patient.

Finally, we believe that if our orders can be carried out better results will be obtained in the treatment of these cases at home than in an institution.

PITUITARY EXTRACT.[1]

BY C. L. NICHOLS, M.D., LOUISVILLE, KENTUCKY.

Pituitary extract is prepared by several firms under different names. These extracts are sterile solutions containing the active part of the posterior lobe of the pituitary body of probably the ox. The dose of pituitrin or pituitary liquid is 15 drops given hypodermically, and repeated in from one to four hours as may be required.

Physiological Action.—Like adrenalin when injected hypodermically, pituitary extract causes a rise of blood-pressure from constriction of the peripheral blood-vessels. On the other hand the blood-vessels of the kidneys are dilated and the excretion of urine is increased. It also increases the force and frequency of the heart's action.

The bladder: It has a stimulating effect upon the muscle fibers of the bladder wall. The stomach and intestines: It increases the activity of the stomach and bowel by contraction of their muscle walls; therefore when given after operative procedures the patient is less likely to suffer with flatulency. The breast: Many observers think it is an efficient galactagogue. The uterus: Here its action is the cause of its great popularity. It produces rhythmic contractions of the uterus, after these contractions have once started. It is especially active during the second stage of labor, producing the to-and-fro contractions which are so greatly desired, and very rarely produces tonic and unyielding contractions.

Therapeutics.—In obstetrics. Quigley gives the following conclusions as to the usefulness of pituitary extract in obstetrics. First, in pituitary extract we have the most powerful stimulant to uterine contractions yet discovered. Second, its greatest value is in uterine inertia. Third, the ideal time for its exhibition is in the second stage, although good results follow its earlier use; in these cases it is usually necessary to repeat the dose. Fourth, no untoward results were noted in twenty-five cases for mother or child, such as postpartum hemorrhage or asphyxia. Fifth, it shortens the third stage. Sixth, it renders catheterization almost never necessary.

Benson asserts the value of pituitrin in obstetrical work is amply demonstrated, and indicates that it has a more pronounced oxytocic action in multiparæ. He recommends it as being especially useful in multiparæ where the cervix is dilated, but the pains are inefficient. Its prompt and decided action in the average case is wonderful. In fifty multiparæ the pains were increased to a very marked degree with one exception. Forty-four were delivered in twenty minutes to two hours. Not only is pituitary extract of great value during labor, but the patient is left in much more favorable physical condition after its completion; the child also seems to be in better general condition. Chloroform administered before the child's head is pressing upon the perineum seems to retard the action of this drug.

Stern reports a number of cases not only of marked strengthening of the normal pains, but several in which the drug was successfully used to induce premature labor. The drug should always be used hypodermically, as very little effect has been noted when given by the mouth. Violent effects are sometimes observed when it is administered intravenously. It has been successfully applied locally in hemorrhage from inoperable uterine carcinomata, and in menorrhagia due to subinvolution. Even where there is a slight deformity of the pelvis, pituitary extract is oftentimes useful. Numbers of cases of this character have been reported where following its use labor has terminated favorably without instrumental means.

In febrile conditions and threatened eclampsia it is oftentimes useful to hasten the labor in the interest of the patient. Striking results are sometimes obtained by the use of this drug in placenta previa, especially placenta previa marginalis. Sometimes it is injected into the wall of the

[1]Read before the West End Medical Society of Louisville, Kentucky, Feb. 10, 1914.

uterus during the operation of Cæsarian section.

The characteristic action of pituitary extract is a shortening of the interval between uterine contractions, a marked increase of intrauterine pressure, and a decided increase in the force of the contractions. In abortions: After the abortion is started and contractions are present, this drug is oftentimes of valuable assistance in emptying the uterus of its contents. In surgical shock: Following prolonged operations, where the pulse is weak and rapid, the injection of 15 drops of pituitary extract every three hours until four doses have been given is a very good procedure; then, if the blood-pressure and pulse are still weak, its administration should be continued. In subinvolution of the uterus injection of 10 drops of pituitary extract four times weekly for several weeks has given brilliant results. It is also recommended for use before operation in removing uterine fibromata. In osteomalacia good results, and in some cases apparent cures, have been obtained by the daily injection of 15 to 30 drops. Some caution is necessary in the case of old persons. In postpartum hemorrhage the remedy is highly recommended.

Contraindications.—Pituitary extract is contraindicated in nephritis, a pelvis that is too narrow, myocarditis, arteriosclerosis, and threatened rupture of the uterus. These are not positive contraindications, as the agent has been used in such cases without bad results. Personally I believe this drug will save us many times the using of forceps. In primiparæ it is especially useful where the pains are weak and tardy, particularly if the cervix is fully dilated and the pelvis is of normal size and shape. I have used it in these cases and find that the pains are increased in force and frequency for sixty to ninety minutes, and have repeated the dose as often as the pains seemed to be diminishing. One should be careful, however, in repeating the dose when the head of the child is near the perineum, as contractions are so strong that a bad tear generally results.

In multiparæ the effect has been more marked. Oftentimes where the cervix is fully dilated and the head in the superior strait, the administration of 15 drops has been followed by termination of the labor within a half-hour. The placenta is expelled much more readily than when the drug is not used. After-pains have been of less frequency than following the administration of ergot. I have found no case in which the uterus has relaxed after the administration of pituitary extract.

DISCUSSION.

H. J. PHILLIPS, M.D.: The pituitary gland has for many years been an enigma to the anatomist, the physician, and the physiologist. It is situated at the base of the brain, resting upon the sella turcica, and consists of two lobes. According to the evidence given us by physiologists, the gland has a dual function or nature, the anterior lobe acting antagonistically to the posterior. However that may be, and even although the physiology of the gland may be yet practically unknown, it seems to exert a marked influence upon metabolism and also upon the cardiovascular system.

The effect of pituitary extract, where we wish to increase the blood-pressure, is usually beneficial. At present I am employing it in a case of mitral insufficiency, giving 40-minim doses t. i. d., alternating with digalen. The patient is a female of forty-two, who has marked edema. The remedy is being administered by the mouth for its diuretic effect, the preparation used being that manufactured by Parke, Davis & Company, of Detroit, Michigan. I began with 15-minim doses, increasing five minims per day, until now the patient is receiving 40 minims of pituitrin and 20 minims of digalen three times a day. She has shown considerable improvement, the blood-pressure being increased and the pulse-rate lowered. The diuretic effect of pituitrin has been markedly beneficial, and I propose giving it until improvement becomes permanent, increasing the dosage five minims per day until the patient receives 75 to 90 minims three times a day. There is no lethal dose of pituitrin; it may be given in from 1 Cc. to 6 Cc. at a single dose.

In obstetrics I have used pituitrin, in both primiparæ and in multiparæ, always being sure that the pelvic outlet was normal. In the presence of marked deformity, especially in Naegel's pelvis, I would hesitate to give this remedy; but in ordinary cases of obstetrics with a lack of *vis a tergo,* with no obstruction in front due to bony deformity, pituitrin may be administered and repeated in one to three hours if necessary, with the expectation of benefit accruing. It certainly induces stronger pains in the second stage of labor, and as I remarked more than a year ago, it saves several hours of waiting. At that time I was criticized by several obstetricians for stating that it saved waiting so long at the bedside, that in ordinary cases of confinement one could secure immediate results from the administration of pituitrin. I have found no difficulty in reference to the placenta being promptly extruded, and there has been no more hemorrhage following the use of pituitrin than without it. I have had no personal experience with pituitrin in any other conditions excepting as a cardiac stimulant, as a diuretic, and for its effect upon the uterus in both labor and abortion.

In the case mentioned I tried the infusion of juniper, with potassium, etc., and am getting much better effects from pituitrin than from the older methods of treatment. The improvement noted is that the pulse-rate has been reduced from 110 to 80, the pulse is softer, and the diuretic effect is more satisfactory than from any other treatment. The patient has all the manifestations that ordinarily accompany cardiac failure. There is a dropsical effusion reaching to the chest, swelling of the feet, legs and hands, with some ascites. The patient has improved under this treatment, but no one can predict what will be the final outcome. Cardiac compensation is destroyed, and if this can be even temporarily restored by the administration of pituitrin and digalen, something has been accomplished toward securing greater comfort for the patient and prolonging her days. Pituitrin is certainly worthy of a faithful trial.

W. B. Doherty, M.D.: I am unalterably opposed to the administration of pituitrin in obstetrics. I have always taken that stand, and have taught it for many years. I am opposed to pituitrin just as I am to anything intended to hasten the first and second stages of labor. It seems to me we are getting away from the physiological process of labor and converting it into a pathological condition! How dare any one give a woman anything to cause completion of labor within an hour, when she should be at least six hours in labor? Should we look at nothing excepting the rapidity with which the labor may be completed? Is the whole question nowadays one of delivering the woman as quickly as possible without considering what may come afterward? Why not give ergot and be done with it?

No medicine has yet been discovered which will produce rhythmical contractions of the uterus, but tonic contractions may result from pituitrin and also from ergot. Why was ergot discarded years ago? Simply because it produced tonic contractions of the uterus, and consequently did more harm than good. So far as I can see the same statement applies to the administration of pituitrin as to ergot. We must look at the aftermath, we must allow the uterus to properly contract, and we want intermittent, not tonic, contractions.

I gave pituitrin in a 15-minim dose to one patient, and after waiting an hour administered 15 minims more. The resulting tonic contractions were so tremendous that it was thought the uterus would be ruptured. The woman was afterward delivered with forceps, as that was considered safer than the risk of rupture of the uterus, cervix and perineum from the administration of pituitrin!

Looking at this matter from a physiological standpoint, let us understand what labor means. It must be remembered that the woman cannot originate a pain herself. The pains of labor may be strengthened by the administration of quinine, strychnine, etc., but if the character of the contractions be changed from clonic to tonic, harm will result to the uterus and perhaps to the woman, which no one has the right to permit. In the presence of extensive hemorrhage

after labor I would give pituitrin or ergot: either would then be an excellent remedy because we want tonic contractions of the uterus; but to administer pituitrin and deliver the woman without giving the passage sufficient time to properly dilate is criminal! After the os is thoroughly dilated, give the woman two hours; if there is no advance half an hour afterward, apply forceps and deliver, which can be accomplished in twenty minutes. Do not attempt to complete the delivery in shorter time than this. Where pituitrin is administered, thus increasing the tonic contractions of the uterus, forcing the child quickly through the channel, does trouble not always follow? We must look at the aftermath. I take the stand against pituitrin simply for that reason. Years ago we used to give ergot in the second stage of labor and deliver the woman quickly. I will never forget one case that I saw when I was a medical student, in which a midwife gave an ounce of ergot to a woman in the second stage of labor. That patient died promptly from rupture of the uterus!

The question is, Are we justified in delivering a woman so expeditiously, without giving the passage ample opportunity to dilate? If the cervix be too rapidly dilated, even in the second stage of labor, injury may be inflicted. Likewise, the vagina and perineum must be given time to dilate. Rapid labor may be most dangerous. I saw a woman who had one pain, and the child was born when I reached her. In a few minutes that woman was dead from shock due to sudden emptying of the uterus!

I therefore take the stand, as I have done on numerous previous occasions, that no medicine has ever been discovered which will induce intermittent contractions of the uterus. Ergot will cause tonic contractions; so will pituitrin, which is distinctly opposed to nature. While pituitrin is highly recommended in obstetrics, I know of one physician in Louisville who had a case of rupture of the uterus from the use of this agent!

I am speaking entirely from a physiological standpoint. Why should not the woman be given plenty of time? Even admitting that she has uterine inertia, should not something else be done than to induce tonic contractions of the uterus?

In this connection I have never yet seen a woman die from the exhaustion of labor. The word exhaustion is used too freely in the books, and the truth of the matter is that we are inclined to give pituitrin and use the forceps merely to quiet the fear that exhaustion may ensue! The woman begs for relief, and while it is not always right we give it to her. There is no branch of medicine to-day which is so badly neglected as obstetrics. There is no necessity for tears of the perineum in the great majority of instances if women were properly delivered. Why not place the woman in proper position before delivery? Why is it that in the city of Louisville to-day not a single woman is delivered according to the text-books? Every text-book instructs that the woman be delivered in the lateral position. Why is it that every woman is delivered on her back, when all the authorities say it should not be done in that way? Go to any place in Europe, in all the hospitals in every country on the other side of the ocean, and the rule is to deliver the woman on her side, and yet here in Louisville it has always been the custom to deliver the woman on her back. While I was taught that way I have learned better from experience, and now deliver the woman on her side; and instead of expediting labor, the second stage is oftentimes retarded to give the parts time to properly dilate. Why should we take the chance of tearing the cervix and perineum by forcible rapid delivery? The proper thing is to deliver the woman in the old-fashioned way without resorting to this modern rapid work! The child is not a foreign body; it should not be removed like a tumor from the abdomen.

The sooner we recognize that in the majority of cases normal labor is a physiological process the better it will be for the woman and for the physician as well.

J. B. Lukins, M.D.: Pituitrin being a recent addition to our armamentarium, it is too soon for any definite conclusions to be

reached concerning its use. It is our duty to first be sure just what this agent can accomplish before we make any positive statements. In the discussion of a new remedy it can possibly be best done by frankly giving our personal experiences.

My personal experience with pituitrin is limited to ten cases of labor, and one of hemorrhage in typhoid fever. I am as a rule very reluctant to use anything to forcibly terminate labor, either forceps or large doses of quinine or pituitrin. In nearly every case I have waited one and a half to two hours, in the second stage of labor, before administering pituitrin. It was given in four primiparæ; all the others were multiparæ. It was repeated only twice in the same case, and was used on two occasions in the first stage of labor. It is contraindicated in the first stage and ought not to be used; it is also positively contraindicated in eclampsia, considering the woman's condition and the physiological effect of the drug. It is contraindicated if there is any deformity of the pelvis.

The typical indication for pituitrin is in the second stage of labor, where the os is thoroughly dilated and when uterine inertia is present. It is certainly a very powerful drug which acts quickly, and there are many reasons for believing it is dangerous under certain circumstances. Thus far, however, I have had no bad effects, and the results from its use have been most wonderful. When one has worried with a woman all night, then gives a hypodermic injection of pituitrin and observes the resumption of labor pains within three minutes with delivery completed within thirty to sixty minutes afterward, it certainly makes a profound impression, especially when no bad effects accrue to either the mother or the child. I have never used pituitrin in postpartum hemorrhage, and there is no reason to believe this would constitute a positive indication therefor. In nearly every case of obstetrics in which I have employed it, the placenta was promptly expelled.

In the case of hemorrhage in typhoid fever I had tried everything else that promised to be of benefit, and the effect from pituitrin was marked. The blood-pressure was raised and the patient passed from a very restless, anxious, suffering condition to one of absolute quiet; and the pulse-rate was reduced from 125 to 80. However, the effect was temporary, lasting only about thirty minutes. The dose was repeated with similar effect, and the result from the third dose was decidedly less marked. Therefore in the end the patient was without permanent beneficial effect, death occurring in spite of everything that could be done.

It is doubtful if the point made by one of the previous speakers is well taken in the case of mitral regurgitation in which pituitrin is being administered. The patient is forty-two years old and has a heart lesion; no doubt there are also kidney complications with high arterial tension. Naturally we would expect a considerable rise in blood-pressure under such circumstances. While perhaps it has been correctly stated that there is no lethal dose of pituitrin, yet no one can tell in the case reported when the heart will fail or some blood-vessel rupture from the stimulation of large doses of pituitrin, and I would hesitate to give it over an extended period of time.

O. H. KELSALL, M.D.: If physicians would frankly give the results of their experience with new remedies, proper conclusions as to their real indications and contraindications would be promptly forthcoming. Years ago ergot was used in all stages of labor, and the main reason for its discontinuance was that in a certain percentage of cases it produced so-called hour-glass contractions of the uterus, and therefore defeated the object for which it was administered. If ergot be used in the first stage of labor, where there are rhythmic normal contractions of the uterus, producing contractions of the circular muscular fibers to a greater extent than the longitudinal fibers, thus bringing about so-called hour-glass contractions, the first, second and third stages would naturally be retarded and retention of the placenta favored.

It is my understanding that pituitrin merely intensifies pains which are already present. It may be true that a woman can-

not originate labor pains herself, nor does pituitrin cause this to be done—that is, it will not induce labor pains where they have not already started. It has been my practice to employ pituitrin in cases in which perhaps others might use forceps—*i.e.*, in which there is uterine inertia. Where the first stage of labor is completed and the woman has been in the second stage two hours, if there is no further process in an additional half-hour, those are the cases in which I use pituitrin; and in many cases it has prevented the necessity of applying high forceps. It is certainly very rapid and marked in its effect; immediately after its hypodermic administration there is intensification of the pains, and the labor is rapidly completed. Toward the end of the second stage, if the labor is progressing too rapidly, my practice has always been to retard it until complete dilatation has occurred. This is sometimes important to prevent injury to the perineum.

One of the contraindications to pituitrin is in the first stage of labor where dilatation is incomplete. However, I have not strictly adhered to this rule. Last week I delivered a woman who had carried her child at least ten months; counting from the time of cessation of menstruation it was eleven months. No record was kept as to the time when she felt life. About the middle of December I found her in labor with the os partially dilated; the pains ceased, and I finally left her with instructions to call me when needed. I saw the woman on four different occasions within the next two weeks, and being convinced the labor was overdue dilatation was completed with the fingers as far as possible, but the pains were insufficient to cause any progress. While aware of the contraindication to the use of pituitrin (first stage) 10 minims were administered hypodermically, after which the labor progressed normally, with regular pains of good strength. Delivery was completed without injury to the cervix or perineum.

I have not used pituitrin excepting in labor, and desire to emphasize the fact that I only employ it in those cases in which forceps would otherwise be required. In a few cases, notwithstanding the administration of pituitrin, forceps have been necessary. I have used pituitrin in about thirty-five cases of labor.

It is my experience that pituitrin does not produce tonic contractions; the contractions are intermittent, and we are imitating nature more by giving pituitrin than by using forceps. If by giving pituitrin we can increase the natural forces and thus aid in the delivery, we are imitating nature more than by the use of forceps.

W. A. Onderdonk, M.D.: My experience in the use of pituitrin has been along two lines, viz., in obstetrics and in shock. My understanding is that this agent should be given after the os is fully dilated and the pains are delayed. The results of pituitrin in labor have been favorable in my experience, the child being born in a short time without any injury whatever to the mother. The pains after administration of this agent are intermittent, and in each case there was ample time to protect the perineum, and no laceration occurred. In three or four multiparæ, without the use of pituitrin, forceps would have been required. There is greater danger of injury from the application of forceps than from the administration of pituitrin. The administration of pituitrin is assisting nature just as would be done by giving appropriate remedies to stimulate a flagging heart.

While I have used pituitrin a number of times in shock, it has not been entirely satisfactory, and I much prefer oxygen, "filling the patient with nature's own stimulant."

I. A. Arnold, M.D.: While it is admitted that the action of pituitrin is not thoroughly understood, it appears to be antagonistic to the secretion of the adrenals. When given internally in small doses it is absorbed slowly and the antagonistic action of the adrenalin secretion will neutralize the pituitrin; therefore little effect may be expected from its internal administration.

In labor the action of pituitrin cannot be compared with ergot. As is well known, ergot produces tonic contractions of the uterus, whereas it has been proven that pituitrin does not. It has been shown that

when the fundus of the uterus contracts, the cervix opens; and it is this rhythmic contraction which is produced by pituitrin, being exactly opposite in action to ergot.

In my opinion it is the normal pituitary secretion which produces proper uterine contractions during labor, and when this secretion is deficient the pains are weak and ineffective. By the administration of pituitrin nature's mode of producing contraction is increased. It is certainly safer to use this agent than to apply forceps. Excepting in small doses pituitrin should not be used in the first stage of labor, and it is contraindicated if the cervix is rigid. After the cervix is thoroughly dilated, with the vaginal muscles relaxed and the outlet clear, give pituitrin half an hour before birth of the child is expected. Its effect will practically have been dissipated by the time the child gets down to the perineum, so there will be no danger of injury. In no case has perineal laceration occurred since I began the use of pituitrin, nor has the application of forceps been necessary.

H. L. READ, M.D.: Pituitrin is one of the most valuable agents we have for use in shock, and in my practice recently I am sure it saved the life of a man suffering from the shock of double amputation. For a time it was thought he would certainly die, shock being so profound that the large blood-vessels would not bleed. Fifteen minims of pituitrin injected into the open vein of each leg was followed by improvement which lasted about an hour, when evidence of circulatory failure again appeared and another dose of pituitrin was given. The man finally recovered.

If pituitrin be given in the first stage of labor it should be in small doses. I have used it in fifteen cases in the second stage of labor, and have always had ample time to protect the perineum from injury. If I had the choice of either pituitrin or forceps, I would certainly take the chances with pituitrin. There is no question that more injury has been produced by the application of forceps than anything else ever used in obstetrics. I have seen more tears resulting from the use of forceps than from the administration of pituitrin.

During the last year I have had one case of postpartum hemorrhage, and also one in which removal of the placenta became necessary; in neither case was pituitrin used. I believe if pituitrin had been given the postpartum hemorrhage would not have occurred, and that in the other case the placenta would have been normally extruded.

T. E. GOSNELL, M.D.: I have never used pituitrin for any purpose whatsoever. From the discussion it would appear that the indications and contraindications for the use of this agent are about equal. It has been said that pituitrin must not be used so long as there is anything in the way which might obstruct the free passage of the child; that when everything is clear in front, then it may be given. My experience has been that when everything is clear in front the child is either quickly born or is easily delivered by the application of forceps. I believe, on the whole, that I shall continue to use forceps! With a fully dilated os and a dilated or dilatable vagina, the child can be easily and safely delivered with forceps in about the same length of time as after the administration of pituitrin. If it be true that on the average it requires fifty minutes to deliver the child after the use of pituitrin, time can oftentimes be saved by application of forceps.

According to my understanding of the matter, if everything is not open and free, then you must not use pituitrin; so I cannot see the advantage of this agent. I do not believe it would be advisable to use it in the first stage of labor; if there is a narrow pelvis you must not use it; from the discussion one would infer if you have a rigid os you must not use it; so, on the whole, if you must have everything open before the remedy is indicated, you might as well deliver the child without it.

C. L. NICHOLS, M.D., in closing the discussion, said: After giving the first dose of pituitrin you can determine how long the effect is going to last. In a primipara I repeated the dose of 15 minims five times during one afternoon. The os was fully dilated, but the patient was so nervous that relaxation occurred with every pain. After

each dose of pituitrin the pains lasted for an hour.

I recently saw a multipara with the cervix fully dilated and the child's head in the superior strait; after waiting half an hour there were no more pains; the membranes had ruptured. I gave her a dose of pituitrin, which was followed by a strong pain, and the child was born within seven minutes. That is the only case I have encountered in which the propulsive force was so great that the child's head was forced from the superior strait during one pain.

Pituitrin dilates the renal blood-vessels, therefore is a diuretic; and it undoubtedly increases the blood-pressure. Instead of tonic contractions of the uterus it produces intermittent contractions many times a great deal stronger than the ordinary intermittent contractions in labor cases. I have observed no bad effects from the administration of pituitrin, although I have read in the journals that such have been occasionally noted. In one case pituitrin administered intravenously produced syncope, and I can well understand that when used in that way it may be dangerous.

Quinine may be used in labor to increase the pains. I formerly used it a great deal, but it produced an unpleasant sensation of ringing in the ears, noises in the head, etc., and the contractions were not nearly so great as following the administration of pituitrin.

While it is recognized the lateral position is proper, some women will not lie on the side in labor, especially one who wants to "pull," because she cannot do this on her side. Last night I delivered a woman of her third child. No pituitrin was given, nor did she need it. I could deliver this woman on her side, because she would remain there. The perineum can be better protected with the woman in the English rather than in the so-called American position.

Pituitrin increases blood-pressure, and in eclampsia with the os dilated I would rather give a dose of this agent than to apply forceps. Pituitrin will cause prompt uterine contractions, and delivery can be accomplished quickly and with less danger than by waiting to apply forceps.

If those who have never used pituitrin, especially in labor, would observe its effects in one case, I am sure they would like it. It is undoubtedly the greatest thing I have ever seen. In slight deformity of the pelvis I would rather take my chances on giving pituitrin, letting the head of the child be molded into the deformity, than to attempt to "drag" the child through with forceps.

THE COUNTRY CARE OF THE DEMENTIA PRECOX PATIENT.

BY BAYARD HOLMES, B.S., M.D., CHICAGO.

There must come a revolutionary change in the care of the chronic insane, and especially of the dementia precox patients. This change will be from institutional care in groups of thousands to country care in isolated homes or in groups of two or three in well-trained families.

No very inclusive rules could be given for a class manifesting so many diverse groups of conflicting symptoms as we find among the insane adolescents, but we can describe the routine that has been valuable in the care of a catatonic case of dementia precox during six years.

This patient was a young medical student when he became insane, and was sent to an asylum. There he was kept eight months. He made such improvement that he was taken home. He then began to be very active in physical culture, music, and productive labors about his home. After six months he was in splendid condition, weighed 146 pounds, and was so normal that he was allowed to make railway journeys alone. Within a few more months he began to decline rapidly.

At this time he was taken to a country home some distance from a highway and on a large lake. His blood picture at this time was polycythemia and leucopenia. His

pupils were widely dilated, insensible to touch, responding to light. His hands were cyanotic, and he was distinctly catatonic. He responded to questions, but was dejected, sleepless, and often untidy. His beard seemed to have stopped growing, and there were blushes on both cheeks, marked by sharp outlines from the general pale surrounding skin. Masses of exudate appeared in the hair of his head from the scalp, and over the face and neck. This exudate, of a greasy consistency, would reappear in a remarkably short time after washing and scrubbing. It could be scraped off behind the ears with a case-knife in six hours after a thorough cleaning up.

He was often taken at this time with trembling while walking, and would then liven up and walk for a time quite naturally. Sometimes he was untidy and would wet his clothes or his bed. He rarely spoke voluntarily and lost weight rapidly.

At this time he weighed 118 pounds and was quite sleepless, lying in bed in a stiff catatonic position, with his hand out stiff and straight by his side. He would not dress or undress himself, and occasionally became alarmed by his delusions and left his bed, or when walking he would strike his attendant. He rarely ran, and never far. He refused to eat, and fought often while being fed.

The routine adopted at this time was quite simple, and yet writing it out makes it seem rather formidable. He had an untrained nurse, usually a young man of about twenty to twenty-five. During six years twenty different nurses have been tried out. They were for the most part students, sometimes medical students. All those who had ever served in institutions for the insane proved utterly unmanageable. The patient slept alone in his room with open windows and an open door, even in very cold weather. This door opened upon the garden at the side of the house. The attendant slept at a distance. The patient's bed was protected by placing a half-blanket or an oil-cloth under the lower sheet.

In the morning at six o'clock the patient was taken to the toilet adjoining his sleeping room to urinate. At this time his teeth were thoroughly scrubbed (with three sets of mouth-washes) inside as well as outside the jaw. If well done it did not often begin a contest. He was then given half a glass of water to drink; his face and hands were washed, his dressing-gown put on, and he was put back to bed in a sitting position, when his hair was combed and brushed and his nails cleaned. He was then fed a grape-fruit or given orangeade.

At eight o'clock he was given his breakfast: oatmeal and cream, toast and coffee, some marmalade, and two eggs; or an equivalent. There was often trouble at this feeding.

At 9.30 every morning he was taken back to the toilet and given, while in the knee-chest position, an enema of four quarts of warm water to which an ounce of glucose had been added. He was then left alone on the stool for ten minutes while the attendant got his clothes in order. With the patient in the same position another enema was then given consisting of four quarts of plain water. The patient was then placed on the stool again and the abdomen rubbed or massaged. The bath was now filled with water at 110° F., and the patient, ten minutes after the second enema was given, was placed in the bath. He was thoroughly scrubbed with brush and soap. His head was shampooed twice a week with resorcin-green-soap mixture. While in the tub he was shaved with a safety razor when necessary. His teeth were thoroughly scrubbed and his face washed. The duration of the bath was half an hour. Very rarely there was a little resistance in the baths, never at the enema.

When the bath was ended the cold hand shower was turned on just for a moment, or a pitcher of cold water was poured over the neck and shoulders. He was then superficially wiped with a coarse towel and dressed sitting on the chair in the bath-room. At this time there was the most danger of real trouble. His hair was combed and the outer attire arranged in his room. He was now taken to the living room of the house, where there was a fire

in the fireplace, and he was placed comfortably before it while the attendant put the bath-room in order.

At 11 A.M. the patient was given a glass of lemonade, an egg-nog, or some other nourishing beverage, and then taken to walk by the attendant for an hour. On returning from the walk, and not later than 12.30, he was again taken to the toilet to urinate. At one o'clock he was fed his dinner at the table, from which all unnecessary dishes were removed. He would, with some gentle urging by touching his arm or hand, feed himself. Occasionally he would resist and break some dishes.

After dinner he was put upon a couch, lightly covered, and, much of the time, a hot-water bag was placed over the stomach to accelerate digestion.

At two-thirty he was again taken for a walk, or, when swimming was good, he was put in his bathing suit and taken into the lake for a swim and a run on the beach.

At four o'clock he was taken to the urinal, and afterward given a glass of milk, a cup of tea, or a glass of water.

At six o'clock at night he had his supper, which consisted of a glass of milk, milk toast, bread and milk, left-over meat or fish from dinner, eggs on toast, or other light meal.

At eight o'clock he was taken to bed. After putting on his nightclothes and placing him on the stool to urinate, his teeth were cleansed and face and hands washed. His hair was combed, his feet were wrapped in a blanket, his windows and doors opened, and his light put out.

Perhaps once in two weeks, hardly oftener, he wet his clothes or the bed. Very rarely indeed did he soil his bed or his clothes.

The only laxative given was a tablet of sulphur and cream of tartar, which was given with each meal—that is, three times every day. The sulphur is found to be in the very center of the errors of metabolism in dementia precox (Waldemar Koch).

Every winter when it was necessary to place this young man in an institution for two or three months, his weight fell from 118 to 103 pounds, once to 95, and once to 82 pounds. When his weight was 128 he was placed for two months in a psychopathic hospital, and his weight fell to 95, his gums became rotten, and he was dirty behind the ears and dreadfully demoralized.

There are some things which have been undertaken for this young man in a therapeutic way that ought always to be done hereafter for every dementia precox patient.

His teeth and gums have been kept in perfect condition while in the country, and after making radiographs of the jaws one impacted wisdom tooth was extracted.

His tonsils have been enucleated.

Three months ago, when he was weighing only 110 pounds in spite of careful feeding for six months, he was injected subcutaneously with Halvar Lundval's remedy. Sixteen doses have already been given. His weight has gradually increased to 133 pounds, and there has been but one disturbance since the first dose. He is much more observing and appears happier. He has not been untidy during this time. It is a remedy which should be tried until a better one is forthcoming, and in its administration we should be guided by the blood picture.

The great institutions are necessary evils and have a place to fill, but they are not economical of human life. Much of the "dementia" and tuberculosis in cases of dementia precox is due entirely to institutionalism. They must ultimately colonize, or better board out the larger part of the more quiet dementia precox patients. Boarding out in trained families is the ideal method when combined with professional supervision and control.

There are thousands of households perfectly competent after proper instruction to carry out this simple routine which would be glad of the opportunity to earn forty or fifty dollars a month; and there are thousands of cases of dementia precox now in institutions where families have the resources to pay for this service, and even now squandering enormous sums at private institutions, where little is done and where

patients are running all the dangers of institutionalism.

Dementia precox is not any longer to be considered of psychogenic origin, since the Abderhalden reaction has shown that it can be diagnosed from manic-depressive and other insanities. It is therefore subject to scientific research and a possible prevention or a possible cure. Let the very rich have the privilege of boarding out in the country their friends with dementia precox, and thus saving enough thereby to further research to discover means of prevention and cure.

The insane are in need of this new organization, the rural community is in need of a new resource and motive for life and study, and many a young alienist could do a good work and gain a livelihood by organizing a community to take a large number of these unfortunates into their homes. Their friends would pay. The state would be taught by this private initiative the better way, and a less pessimistic attitude would be taught the public. This method has been successful in France, Belgium, and Argentina. A similar method has been adopted in all the Australian colonies for the destitute children. In that whole continent there is not an orphan asylum, or an orphan. On this continent it is time to consider the interests of the insane person. We need more for research and less for institutional custody.

THEORY AND PRACTICE IN SURGERY.[1]

BY J. E. SWEET, M.D.,
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My text is found in the seventh verse of the first chapter of the Book of Dionis, entitled "A Course of Chirurgical Operations, demonstrated in the Royal Gardens at Paris," by "Monsieur Dionis, chief chirurgeon to the late Dauphiness and to the present Dutchess of Burgundy," translated from the Paris edition and printed in London in the year 1710:

"But it must be granted that the Chirurgeon, to whose lot no more than this *practical Manual and Operative Chirurgery* falls, will frequently run the risque of Killing and Laming his Patients, when without the Direction of a Physician; and, even in the Presence of the Physician himself, will he not be in danger of committing Faults, if his Hand be not guided by his Head? 'Tis certain, that to walk well good eyes and agile and pliant legs are requisite, and that the one without the other is insufficient for that purpose. A blind Man, for instance, provided with good Legs, and led by a quick sighted and faithful Guide, may stumble for want of Light. So, whatever Experience a Chirurgeon may have, if he have not the Knowledge which ought to direct him in his Operations, he will work in the dark; and if he be not a good Theorician, he will never prove an able Practitioner."

It is this adjustment between theory and practice that concerns us. The student emerging from the first two years of theory into the third year of practical work finds himself in the difficult position where he must often wonder how much of this theory will ever be of any practical use to him. The fourth-year man, about to sever his connection with the teaching institution to take a residency in a purely practical hospital, will find himself in a still more difficult position. If my observation has taught me aright, there is to-day an actual conflict between theory and practice. The theorist takes great glee in the thought that, whereas five years ago a syphilographer was a man who had seen about a million actual cases of the disease, to-day the real syphilographer is the man who can most certainly control the technique of the Wassermann reaction, and may have seen comparatively little actual syphilis. On

[1] A lecture delivered before the third and fourth year classes of the University of Pennsylvania.

the other hand the practitioner seems to find much sport in the fact that vaccine therapy, which should work so well theoretically, miserably fails in so many cases. So the interchange of compliment and repartee goes on, amusing to those who do not take it seriously, yet constituting a real danger to the beginner, who is misled into believing that there is a real dividing line between theory and practice. I am convinced that the danger is a real danger, for I see men constantly who as students showed a true interest in the theory of surgery, but who return a few years after graduation apparently solely interested in technique and the number of cases they have seen. These two hundred years since our friend wrote our text have but emphasized the fact that "if he be not a good theorician, he will never prove an able practitioner."

It is therefore my intention to review certain phases of present-day surgery and to point out certain instances wherein we fail, either because the theory does not suffice for the practice or because practice does not live up to the actual theory; and to make you, if possible, see that the proper balancing of theory and practice is the foundation of success in practice as well as of the future advance in medical knowledge. Let us take up, then, definite examples of modern surgical practice and see where theory and practice meet or do not meet.

I suppose the first problem which comes to the mind of the thinking surgeon to-day is the cancer problem. One out of every eight women, one out of every eleven men afflicted, a total of 75,000 deaths each year in these United States alone—a death-rate now exceeding that from tuberculosis—die from a disease which must have been at one time in every individual case but a single cell or a small group of cells which could have been at that time absolutely, completely removed. It makes no difference whether it is finally shown that cancer is an infectious disease, or that it is simply the running wild of a group of normal cells, the theory in either event must postulate that the process had its beginning in a small localized area which could have been completely removed. This is the theory. How about the practice? The statistics of the State of Pennsylvania show that the average time when a physician is consulted after the patient is aware that something is wrong in the part affected is one year, and the average time of consultation with the surgeon is two years after this date, when the patient first realized the abnormality. We often read in articles on cancer something like this: "It is to be regretted that in spite of the vast amount of research work being done, the vast sums being expended, we know so little about the disease." No one can feel a more poignant regret than the theorist that this should be true; nevertheless the present theory of cancer makes the way perfectly plain—early diagnosis and prompt operation. Neither this theory nor this indication for its application is new. Fifty years ago Jonathan Hutchinson expressed this practical application of the theory in words as plain and as forceful as any recent writer, yet every year since then has seen a steadily increasing death-rate from cancer.

I personally believe that we shall record no marked advance in the cancer situation until we have introduced into practice the idea that the public shall regularly visit their family physician, insisting upon and receiving from him a real, thorough, physical examination, just as frequently as they now visit their dentist for the examination of their teeth. In fact it is to-day a curious reflection upon the sense of proportion of educated people to see them hasten to the dentist every six months for the good of their teeth, the only organ they possess which can be successfully replaced by an often better set of store teeth, and then see them die at the age of forty-five from the ravages of a growth which could have been at one time removed, with not much more inconvenience and with less pain than is involved in the filling of a cavity. I suppose this, to me, ridiculous situation is made possible by the fact that the teeth are so much in evidence—because other people

can see them. If the modern tendency in women's clothes continues, it seems quite possible that this same element of publicity may perhaps before long become a factor in the question of cancer of the breast.

I do not believe that it would be more difficult to lead thinking people to see the point than it has been difficult for the dentist to make them see the point; indeed, I have often tried the experiment of this suggestion with lay friends, to meet invariably the saddening objection that their physician would laugh at them if they went to him with any such proposition. In the meantime not a small number of cancers of the breast are on record where the disease has reached the inoperable stage before the patient herself was conscious of anything wrong. How else can such cases be reached? The theory of cancer attaches a potential possibility to every pigmented mole. How often are they removed simply from the standpoint of the theory of prophylaxis? Even as things are now, how about that whole year after the cancer patient has seen a physician before the surgeon is consulted—what is the physician doing during that year? Has he failed, perchance, in his application of that fundamental theory of medical practice that the physician must inspire the complete confidence of his patient, or has he, even worse, forgotten the theory of present-day practice, namely, that the day has gone when the ills of the body can be diagnosed by a glance at the tongue, and failed to make an even passably respectable physical examination? It must be a great comfort to the practical man to know that all that vast mass of theory in regard to the differentiation of tumors, for example of the breast, can now be relegated to the place whence it came, the academic realm. Practice has taught, regardless of theory, that the point is not what variety of tumor confronts us, but simply, Is there something there which does not belong there? If there is, treat it as you would a cancer. I, too, regret that we have no certain cure for cancer; that we have no means of certain early recognition; but I likewise must insist that the theory we have and the present-day practice are all too far apart. Now you men right here sitting on these benches, idly dreaming of home and mother and the girl you left behind—what are you going to do about it? Are you going to remember your theory and try to make your practice conform to it, or are you going out to join that noble company who are so filled with regret that our theory is lacking, that their patients must needs wait a whole year before consulting a surgeon?

Turning to another field of surgical practice, we find an opposite condition—either too much theory or else all of it wrong. I refer to the problem of surgical shock. It is an interesting sidelight upon this problem that it is largely an American problem. Our German friends, usually the leaders in theory, have paid very little attention to shock. If we review the present situation we are confronted with such an outlay of theory that it is no wonder that practice knows not what to do. There are three main theories. The one and the most generally accepted is that shock is the expression of a fatigue of the vasomotor centers, these centers having been exhausted by the great multitude of sensory stimuli which beset them, especially during the course of a surgical operation. This theory has the advantage over others that it has given results applicable to practice, and we have Crile's practice of anociassociation, or avoidance of all forms of sensory stimuli which might in any way add to the burden of the vasomotor centers. Thus we are to start in by treating the patient as a human being, and not scare him to death to begin with. Then we are to make use of narcotics, morphine and scopolamine, of local anesthesia, plus gas oxygen, plus cocaine block of all sensory nerves encountered. The first objection to Crile's theory of shock might be that the author himself is manifestly not satisfied with it, and therefore it cannot be right, for he has now gone on with his "kinetic theory" into the realms of the pathless unknown. His original theory of shock manifestly stands or falls on the fact whether sensory afferent im-

pulses are cut off by ether or not, and the opponents of this theory maintain that no experimental evidence can be obtained of such a thing as fatigue of the vasomotor centers by prolonged sensory stimulation.

Another theory is based upon the fact that a certain amount of CO_2 must constantly be present in the blood if the vasomotor centers are to functionate properly. This theory of acapnia, the theory of Henderson, has been disproven by the fact that the blood-pressure in such experiments is directly proportional to the force used in the pump, by means of which the hyper-respiration is produced, and has little or no relation to the CO_2 content of the blood (Janeway and Ewing: *Annals of Surgery,* February, 1914).

The third theory explains shock as a phenomenon of inhibition.

My own belief is that the chief cause of this confusion is because of the attempt to explain all forms of death accompanied by low blood-pressure on the same basis. It is certain that the characteristic symptom of shock—low blood-pressure with congestion of the splanchnic area—can be produced by several primary factors, and in the interest of clarity of ideas, especially as regards practice, I would suggest that the conditions which may be followed by low blood-pressure and consequent death be separated into four groups:

First, I would define as snycope—from *συγκοπή*, a cutting short—the condition in which the blood-pressure falls because the great automatic centers are cut off short. A blow on the head may result in immediate syncope (cutting short) if the force be sufficient to cause that condition of the cerebral centers best spoken of as commotio cerebri, or else a cerebral edema or a hemorrhage follows and the intracranial pressure rises until it cuts short the function of the centers. The bounding pulse characteristic of this condition is sufficient proof that the vasomotor mechanism is performing its function. It is obvious from the practical side that in such a condition the head should not be lowered even or the pressure in the cranium would be merely increased by adding the factor of gravity in the venous system to an already dangerous pressure; nor would bandaging of the limbs, nor stimulation of the vasomotors, nor infusion of salt solution be indicated. The only direct indication is to relieve this pressure on the centers.

Second, I would define as collapse—*collabere,* to fall together—the condition in which by the phenomenon called cardiac inhibition the machinery of the circulation fails, the heart falls to pieces, as it were. This is a condition seen after a blow on the chin or the larynx, a blow over the solar plexus, and is probably the common cause of deaths under anesthesia, especially in operations about the larynx. Here, again, vasomotor stimulation is not indicated; saline infusion, bandaging of the extremities, perfusion of blood—all this is contraindicated; the engine is stalled, and putting on more load will not start it. In fact it is not unlikely that a venesection would be of more help in this condition than any effort which would increase the burden of the heart; the poor thing, remember, is having troubles enough of its own.

In the third place I would put hemorrhage. Without denying that loss of blood may be a factor in the production of the condition which appeals to my mind as true surgical shock, I still object to grouping deaths due to hemorrhage under the caption of deaths due to shock. Death occurs after hemorrhage because the patient bleeds to death, and I would suggest that we forget that shock has anything to do with it. The practical side of this part of the picture is perfectly plain. The patient has lost blood, and blood must be replaced. But let us not jump too hastily to the conclusion that because the patient has lost blood we must necessarily replace the loss by blood. If we had the patient's own blood in such sterile condition that we could put it back we would certainly do so. This we do not have, but before injecting other human blood we must remember the fundamental theory of the specificity of individual tissues, which holds true of even such relatively simple tissues as the bones and the

red blood cells. Therefore no matter how simple the technique of the operation may be or may be made, let us not grab too hastily the nearest relative. Let us think for a moment of the theory, which is that a patient dying of hemorrhage dies at a time when there are still plenty of red cells left in the body to carry on all the normal functions of the blood, but when the fluid column of the blood has become so diminished that the heart cannot get a grip upon it; if now we simply increase the fluid contained in the blood-vessels the heart can once more mechanically resume its work. The problem of what to use to increase this fluid content of the body is to my mind not yet settled. Salt solution does well in most cases, but the loss of a large proportion of the formed elements of the blood and their replacement with salt solution must diminish the viscosity of the blood and thereby greatly lower the normal peripheral resistance. It may be for this reason alone that the running pulse of hemorrhage does not always properly react to saline infusion. It is possible that modern colloidal chemistry will offer some substitute for saline which will enable us to keep the viscosity of the blood nearer its normal.

Now having ruled out head death, heart death, hemorrhage death, what is left to constitute the group which is true surgical shock? Obviously the problem has lost in importance. True surgical shock is to my mind the condition marked by a gradual, persistent, progressive fall of blood-pressure such as characterizes certain cases after extensive crush injury with practically no loss of blood, cases of extensive burn, and many intra-abdominal conditions, particularly high intestinal obstruction, or ileus, and acute hemorrhagic pancreatitis. These are in my opinion instances of primary failure of the peripheral vasomotor mechanism, and I further believe that they are associated in some manner with a disturbance of adrenal function. Remember that the point where the vasomotor system accomplishes its work, transforms the energy of the centers into work, is not in the venous system, nor in the capillaries, but in the arterioles, and the mechanism which transforms energy into work here is the musculature of the arterioles. We know that when the adrenals have been largely destroyed by disease we have the picture of Addison's disease, a picture characterized by the asthenia of the skeletal muscles and also by the asthenia of the musculature of the arterioles, hence the consequent low blood-pressure. We know that this true form of surgical shock is especially apt to follow a manifest toxemia as after severe burns or in hemorrhagic pancreatitis. We know that the adrenals are almost specifically affected by some toxins, as in diphtheria, and we know that the prolonged administration of chloroform or ether certainly injures the adrenals. Further, the only way in which I have succeeded in producing experimentally the condition which to me compares with surgical shock is by the complete removal of both adrenals. From the practical side we know that adrenalin, since Crile's introduction of the drug in practice, has proven valuable in the treatment of this condition.

Now it is my belief that adrenalin produces a good effect not only because it raises the blood-pressure, for which purpose alone it was introduced, but because it supplies a something which is certainly essential to life, and in these cases is apparently lacking. The treatment of surgical shock must therefore consist in the continued administration of adrenalin or pituitary extract, which seems to act as does adrenalin, plus efforts to remove the causative factor. In cases due to a manifest toxemia it is certainly only symptomatic treatment to endeavor to sustain blood-pressure and not make an effort to remove the primary toxin. This is illustrated by experiments with dogs which would otherwise have died from high intestinal obstruction in three days, but which have been kept alive for ten days or longer by the use of large amounts of saline solution, probably because the toxin responsible for the death of the animal is thereby more readily eliminated. I suspect that the problem of which vasomotor stimulant to choose, whether caffeine or strychnine, etc., is probably a simple one—they are all aimed at the wrong end of the vasomotor system.

Not the vasomotor centers, but the mechanism at the periphery which transforms the energy of the vasomotor centers into work, needs stimulation; hence the good results of bandaging the extremities and using the pneumatic suit, which are mechanical supporters of the periphery, and hence the good of adrenalin, the chemical supporter of the periphery. This problem of surgical shock is a most interesting one, because every time it is touched one seems to "get in" worse. It is primarily a clinical problem, and ought to be approached by the practical man who has not forgotten his theory. It affords one of the most striking examples of a situation where theory and practice should be amiably wandering together hand in hand.

It will doubtless be a relief to you, as it is to me, to turn from a situation where daylight seems befogged by theory to the opposite side where practice is impatiently waiting for more theory. This situation we find in the consideration of the problem of goitre, both endemic and exophthalmic goitre. In the first place why is endemic goitre? We had about convinced ourselves that endemic goitre bears a certain relationship to the water-supply. We were told of certain villages in the goitrous districts of Europe where the introduction of a new water-supply was followed by a marked diminution in the number of cases, of other cases where the reverse was found true, where endemic goitre followed the changing of the water-supply. But now we learn on what seems equally good authority that a resurvey of these districts showed that this is not true (Dieterle, T., Hirschfeld, L., and Klinger, R.: Epidemiologische Untersuchungen uber den endemischen Kropf, *Arch. f. Hyg.*, 1913, lxxxi, p. 128.); that such geographical features as lines of communication are of more importance in localizing the disease than the water-supply. Some evidence is even brought forward that there may be a localization of infection in certain houses. If endemic goitre is found to be an infectious disease, then surgery becomes merely a form of symptomatic treatment. What can we say in regard to exophthalmic goitre? We had just made up our minds that myxedema was the expression of too little thyroid function and exophthalmic goitre the expression of too much thyroid function. Now comes the report of the existence on the coasts of Spain (Marimon: *Berl. klin. Woch.*, 1913, i, 1296) of cases of myxedema and exophthalmic goitre occurring synchronously in the same individuals. This fact certainly does not agree with the theory. The explanation offered seems a good one; both myxedema and Graves's disease are due to the same pathological process. A certain amount of iodine properly prepared by the thyroid is necessary for the body metabolism; if this is lacking we have myxedema. Graves's disease follows from the presence of an excessive amount of unmetabolized iodine. This theory has one virtue: it explains why the administration of the iodides sometimes transforms a simple goitre into an exophthalmic goitre, and also why so often an exophthalmic goitre terminates in myxedema. What business has surgery to mix into the problem like this of metabolism anyway? The surgeon answers that he is the only one who does anything for these patients, even while Kocher makes the statement, indorsed by Charles Mayo (Bull's System of Surgery), that 90 per cent of all goitres can be so improved by medical treatment as to make operation unnecessary. There is certainly no surgical operation which results in the greater pleasure and satisfaction of the patient than the operation for Graves's disease, yet Musser stated flatly that goitre is not a surgical disease (*American Journal of the Medical Sciences,* vol. 143, 1912, p. 814). In his opinion surgery should be, or better, will eventually be, limited to the conditions of other organs, particularly the generative organs, which are so often involved in Graves's disease. There is even some question of the actual accomplishments of surgery in connection with exophthalmic goitre. Apparently about 3 per cent die after operation, and 3 per cent die eventually if not operated. The surgeon points with pride to the lessening of the years of invalidism; the medical man retorts that he does it by killing 3 per cent of the patients

four or five years before they would otherwise die. This change in the theory of exophthalmic goitre illustrates well the close relation which must exist between theory and practice; theory must conform to the facts of practice, and when new facts arise which cannot be explained by the theory we have, we must discard the theory. The facts of practice are immutable, theory is flexible.

"If I were king" I think I should have, first, much less required work in the fourth year; and secondly, I would introduce short courses in physiology and pathology conducted perhaps after the methods of a seminar, and conducted in the wards of a hospital in which these subjects should be reviewed from the standpoint of the broader point of view which has been acquired in the last two years, reviewed from just this standpoint of the necessary relation between theory and practice. Such a review of anatomy you now have in your work on operative technique, since a part of the technique of any operation is a review of the anatomy of the part. In the same way I would have the practical application of physiology and pathology.

What I would have you take from my sermon is not the impression that I said that theory is rot and practice rotten. Remember that medicine is a growing thing and that you have therefore to keep right on as a student. You will soon be free from examinations of the written variety, but you will as long as you practice medicine have to stand the daily examination of your results. Do not take this exchange of repartee between the theorist and practitioner too seriously. Admitting that the theorist is doubtless often a liar, or worse an impractical enthusiast, yet he frequently "puts something over." If you study the leaders of the profession to-day you will find that they are the very ones who most successfully combine in themselves the theorist and the practitioner,, and this is as true of our leading theorists as of our leading practitioners, that they are the ones who have most carefully lived up to the text, "If he be not a good theorist he will never prove an able practitioner."

EMETINE AND ITS VALUE AS A THERAPEUTIC AGENT IN AMEBIASIS AND OTHER DISEASES.

Low in the *Proceedings of the Royal Society of Medicine* for April, 1914, says that an analysis of cases enables one to come to certain conclusions. Emetine is not a specific in the sense that it completely sterilizes the body from amebæ. Relapses after its use occur, and these are by no means infrequent. The drug may be compared with mercury and salvarsan in syphilis and quinine in malaria, where, again, even after long periods of treatment, relapses or recrudescences are met with. Protozoal infections are always very difficult to eradicate, and when anything detrimental to the parasites causing them happens, forms arise which are specially resistant, and though remaining quiescent for long periods, under circumstances favorable to themselves, often give rise to the disease again.

In amebic dysentery the amebæ become encysted, and then apparently the emetine cannot kill them, this stage being a very resistant one. At later periods these become transformed into the living forms again and so produce relapses. Treatment, therefore, for amebiasis must be conducted on similar lines to that of malaria by quinine. Suitable doses must be given and kept up for prolonged periods of time. Low therefore gives ½-grain doses of emetine hydrochloride until 10 grains in all have been taken. Then, if all symptoms have abated, the drug is stopped and the patient kept on a strict diet. Some cases, even after this, relapse, and then a second course of the emetine has to be given, and so on. Sometimes injections are inconvenient, and in these instances keratin-coated tablets may be tried. Low's experience of these is that some patients can take them without vomiting or any unpleasant symptoms; others are sick for the first day or two, then tolerate them; while a third group keep on being sick each time they take them. In this latter case injections must be substituted. The dose by the mouth is 1/3 to ½ grain, and if not vomited is quite as effective as injections. As

regards the latter, it is more satisfactory to inject the drug intramuscularly than subcutaneously. Some stiffness may even then result, so it is well to vary the site of the injection. Some cases do not do so well with emetine as others. Low recently saw a case in which the stool still showed blood and mucus after twenty ¼-grain injections, and another whose stool was teeming with cysts after a short course of the drug. The efficacy of the treatment is tested by frequent microscopic examination of the stools passed per day, and by microscopic examination for the entamebæ from time to time; these usually disappear very quickly from the stools after the first two or three doses have been taken.

In addition to the emetine treatment a milk diet, and then later a milk and white meat diet, must be insisted upon, and no alcohol in whatever shape or form is to be allowed. The patient should remain a teetotaller for a year or more after all signs of the disease have disappeared.

Amebic abscesses discharging through the lung or discharging externally are greatly benefited or even cured straight away, without surgical interference, by emetine. When an amebic abscess is opened and drained emetine injections should be started at once, as they will help greatly in the healing process.

Cases of amebiasis without signs of dysentery or hepatitis or abscess have also been met with. In these there is a high temperature, this quickly falling, however, and all other signs disappearing on the administration of emetine.

In addition to its use for dysentery, injections of emetine have lately been tried in the treatment of hemoptysis and intestinal hemorrhages. Flandin in France, impressed by the prompt disappearance of blood from the stools in cases of amebic dysentery treated by injections of the soluble salts of emetine, suggested the possibility of the drug being similarly effective in hemoptysis. Eight cases of this condition were treated, and in all of these, with the exception of a galloping case of tuberculosis, the hemorrhage was definitely arrested, the bleeding stopping immediately. No bad symptoms, such as nausea or depression, followed the administration of the drug. In some cases, though all traces of blood may disappear from the sputum, blackish clots may remain for some time. If after one injection there is a tendency for the hemorrhage to return, Flandin gives a second injection twelve hours later, and again on the following day. His dosage was 0.04 of emetine hydrochloride dissolved in 1 Cc. of distilled water. The arterial pressure was taken both before and after the administration of the drug, but no change was noted either in it or in the coagulation of the blood, or in the blood count.

These results were confirmed in twelve other cases by other physicians, while Renon also succeeded in obtaining the disappearance of blood from the sputum in two cases of lung carcinoma by the same treatment. The latter observer later tried emetine injections for serious intestinal hemorrhages. He quotes Valossopulo, of Alexandria, and Edham, of Salonica, as having obtained good results from these in hemorrhage from a carcinoma of the large intestine, and from a case of mucomembranous enterocolitis. In his own experience Flandin's five cases of severe intestinal hemorrhage, including hemorrhage due to biliary and hypertrophic cirrhosis, hemorrhage after typhoid and ulcerative enterocolitis and chronic nephritis, were treated with rapid and excellent results. Flandin finally states that Raymond also was successful in dealing with hemorrhage of the stomach from a single ulcer and from a neoplasm, and with a severe intestinal hemorrhage after typhoid. Renon advises doses up to 9 centigrammes.

These results would seem to indicate that in emetine we have a useful means of arresting hemorrhage. Why this should be is not altogether clear, but as it has been stated that the drug exerts a powerful local constricting effect upon blood-vessels, it is possible that this is the explanation of its action in these cases.

EDITORIAL.

A CORRECTION.

On page 319, first column, fifth line from the bottom of the page, in the May GAZETTE, the dose of scopolamine is printed as ½ of a grain instead of 1/200 of a grain. This is so far beyond the dose with which every one is familiar that it must have been recognized as an obvious mistake.

THE PINEAL GLAND FOR DEFECTIVE CHILDREN.

Although the advances in our knowledge concerning the action of glands of internal secretion have been extraordinary within the last two decades it is manifest that this new field has just been touched and nothing more, and it is also manifest that we have very little information concerning what may be called the interlocking directorate which exists among these glands. For a long time it has also been evident that different portions of the pituitary body have different functions.

For these reasons we wish to call attention to an article by Berkeley in the *Medical Record* of March 21, 1914, concerning the use of pineal gland in the treatment of certain classes of defective children. Having observed clinically that the overgrowth of the pineal gland results in overgrowth of the body in general and the early development of puberty in children, it occurred to Berkeley that possibly this gland, derived from animals, might be used in certain children who suffer from physical and mental defects, and for this reason, using the pineal body of young bullocks, he has carried out certain clinical experiments. Thus, in one case, a girl of nine and a half years, about normal in height and weight for her age, with a negative family history, born at term in a precipitant labor with no instruments, remained well until five years of age and then had convulsions. She was operated on four times for adenoids and diseased tonsils, and had a rickety chest, but her organs were otherwise negative, save that she was mentally retarded and had been so for a number of years. The child received pineal gland twice daily, and seven weeks later was reported to have made very marked improvement. A year before the treatment began she could not write a word without help. After treatment she could write simple sentences. In September before the treatment she could not spell. At the end of January, when the treatment had been continued a month, she could spell thirty-eight words out of forty and was able to sew. Cases of a similar character are also quoted.

Berkeley is free to admit that the manner in which the pineal gland does good in these cases is entirely unknown, but he goes so far as to express the hope that if this gland accelerates the sluggish action of the brain in a retarded child, may it not also serve to arrest or delay certain cases of premature breakdown of the mental powers in old age? From his clinical experience he thinks it will. The field is certainly an interesting one, and it is to be hoped that it will be further developed and placed upon a more satisfactory basis.

TREATMENT PRELIMINARY TO ANESTHESIA.

Those physicians and surgeons who have, within recent years, put on record cases of postanesthetic toxemia accomplished more than they thought to do in that they stimulated investigation as to how these serious consequences might be avoided. The introduction of the drop method of administering ether has diminished to a remarkable extent the objections which hitherto existed to its use as an anesthetic.

We have been convinced for a long time that prolonged starvation prior to the administration of an anesthetic was

unwise, and that if surgeons would see to it that patients had their tissues well stored with foodstuffs prior to an operation these patients would pass through the anesthesia and the operation with comparatively little difficulty. In much the same way that it has been proved that the acidosis of diabetes is to be chiefly combated by the free administration of a readily-assimilable carbohydrate, so can postanesthetic toxemia be put aside by giving the patient easily assimilated forms of starch up to within a few hours of the operation. Barley gruel, wheaten gruel, rice gruel (not broth), or thin corn-starch may be used for this purpose, hurrying its absorption by adding to it, as it is taken, taka-diastase or pancreatin. If this is done nourishment can be given within three or four hours of an operation without increasing the tendency to vomit, and with a strong probability that the liver and muscles will be the better stored with glycogen.

This view is supported by a contribution made by Opie and Alford in the *Journal of the American Medical Association* of March 21, 1914. Carrying out their experiments upon animals, using chloroform as an anesthetic, and employing fats and meats as well as carbohydrates as foodstuffs, they found that animals which received carbohydrates survived; whereas all of those which received meat and fat died. They also found that microscopic examination of the liver of starch-fed animals showed that necrosis was scant. Animals which had received no carbohydrate died; and animals which received meat showed a hepatic necrosis affecting from two- to three-fifths of the lobules. They believe that the use of fats increases the susceptibility of the liver to the pernicious action of chloroform, probably because chloroform is soluble and diffusible in fats and thereby determines the fixation of chloroform in the liver and the occurrence of necrosis. On the other hand, a carbohydrate diet seemed to protect the liver from this disaster. These are experimental results which confirm large clinical experiences.

ARTIFICIAL PNEUMOTHORAX AGAIN.

We have already called attention in recent issues of the THERAPEUTIC GAZETTE to the excellent results which are being obtained by the production of artificial pneumothorax in suitably selected cases of pulmonary tuberculosis. That it often arrests the disease in the affected lung seems certain, and it affords a method of controlling hemorrhage, when this accident frequently recurs, which surpasses any other yet devised. It is interesting to note the immediate and remote results which are being obtained by various clinicians. Schaie in the *Journal of the American Medical Association* of March 21, 1914, records his experiences in four or five cases, many of which were in desperate condition. In twenty-one of them a complete pneumothorax was obtained, and in eighteen a partial pneumothorax. In six cases he entirely failed to find the pleural cavity. Eight of the forty-five cases gave brilliant results in that all the symptoms diminished in severity and the patients gained in weight. In six of the cases in which he failed to introduce gas into the pleural cavity as many as ten attempts were made. In two cases as much as 1800 Cc. of nitrogen gas were injected, yet on physical examination there was no change in the chest signs and the *x*-rays failed to reveal evidences of pneumothorax. The explanation of this probably lies in the fact that the visceral and parietal layers of the pleura were glued together and that the needle entered the lung so that the nitrogen was lost. Apparently, however, the introduction of the needle into the lung was not followed by disastrous results. Schaie insists that as soon as the patient manifests any dyspnea or pain the injection is to be stopped. At first he inflates every two to five days, and in some instances every day, until complete pneumothorax is induced, but small repeated doses seem to give the best results. After a complete pneumothorax is induced a period of ten days to a month is allowed to elapse before more gas is used. He found that the expectoration is frequently increased

after the initial inflation, although the cough is diminished, and that this applies particularly to cases in which there are cavities. If subcutaneous emphysema develops further injection is not attempted until the subcutaneous emphysema has completely subsided. Disagreeable effects were rarely met with. In one case persistent tachycardia developed. In two cases there were several small hemorrhages, which, however, did not interfere with subsequent injections and which did not persistently recur. Severe cough after an inflation persists for a short time in some instances. Strapping of the chest after inflation was found to diminish the chances of subcutaneous emphysema. Out of four hundred inflations pleural shock occurred but once, and this before any gas had been allowed to enter. One sudden death occurred seven days after the first and only inflation. Nine of the patients died at varying intervals after the treatment from causes not directly thoracic, as, for example, one died of tuberculous meningitis; another, solitary brain tubercles; another, tuberculous laryngitis and enteritis; and still another as a result of cardiac dilatation. One other case died from circulatory failure dependent upon dilatation of the right ventricle.

Schaie uses one-per-cent novocaine solution with 1:6000 adrenalin as a local anesthetic at the point of puncture, and injects at least 30 minims.

POSTURE DURING ANESTHESIA.

In the Progress columns of this issue of the GAZETTE we publish some interesting data in regard to this important subject—a subject investigated by Dr. Edward Martin and the writer some twenty-five years ago, when we showed that the Trendelenburg posture, or any position, in which the patient's body was partially inverted, produced changes in circulation and respiration of sufficient gravity to be disastrous. While it is true that the posture of a human being, when lying down and when erect, is very different from the posture of one of the quadrupeds, and while it is also true that the tissues which maintain abdominal support in a quadruped are quite different from those in man, nevertheless in an obese man or woman with a large pendulous abdomen, the conditions are nearly the same when they are placed in the Trendelenburg posture as when a rabbit is held by the hind legs and the ears and it is inverted at an angle of 45 degrees. Under these circumstances the bulky abdominal contents of both the rabbit and the man falling against the diaphragm seriously impede the movements of respiration and alter the condition of the general circulation.

The paper which we refer to in our Progress columns definitely names a number of pathological conditions which have been proved to result from the Trendelenburg posture. Our experience, both in the laboratory and since that time with a large number of clinical cases, convinces us that the statement that there is no more certain way of killing a fat woman than by leaving her for some time in the high Trendelenburg position is correct, and it is a particularly dangerous posture if there is cardiac dilatation or feebleness, or if the heart is overloaded with fat.

VACCINE AND SERUM THERAPY IN SEPTICEMIA.

The careful student of current literature concerning serum and bacteria therapy will be struck by the fact that periods of enthusiasm have been followed by those of skepticism and neglect; that many of the reports as to beneficial effects have been far from convincing; that the fundamentally sound sense of the medical profession still relegates the treatment in general to the class which may be regarded as promising, but not yet proven; that the doctrine as to the inefficiency, nay the danger, of the treatment during acute periods of infection is generally accepted, with some notable exceptions; that, as time goes on, the number who practice the treatment and with a suf-

ficient percentage of successes to encourage them in its continuance is steadily increasing. Therefore Burnham's paper (*Annals of Surgery,* May, 1914) is particularly timely and of especial importance, since it deals with 111 consecutive cases of severe infection collected from the records of the Presbyterian Hospital, New York City, in which either the course and symptoms were those of septicemia, or cultures showed the presence of bacteria in the circulating blood. These cases occurred between 1905 and 1913 and represent, not the therapy of one physician, but rather the treatment of a group of physicians and surgeons on the various services of a general hospital. During the early part of this period vaccines were never used and serum only rarely, nor was it until 1907 that the facilities of the hospital permitted systematic open-air treatment of ward cases. Cases in which blood cultures were not made or showed no growth have been included because, from a clinical standpoint, they resembled the cases of proved bacteriemia.

There is a general grouping in accordance with the etiology. Thus a certain number follow abortions or labor, others infected wounds or abscesses, others were associated with osteomyelitis and arthritis, others with malignant endocarditis, and finally there is a miscellaneous group.

The final mortality was 74, or 66.6 per cent. In assigning its just value to this record it must be remembered that the hospital cases are the severe ones in which home treatment has failed. The mortality of the cases following abortion and labor is 54 per cent, there being 50 cases in all. In 22 cases the blood cultures were positive, the majority of these showing streptococci in pure culture. There were two due to the bacillus aerogenes capsulatus, two were due to stayphlococci, and the remainder were streptococcic bacteriemia.

Of the positive blood-culture cases the mortality was 66 per cent. This corresponds with the reports in general. The leucocyte count was usually between 10,000 and 20,000. Burnham believes that a high count usually indicates a complication such as abscess, empyema, or peritonitis. Cases recovering under treatment usually showed a diminishing leucocyte count with a diminishing percentage of polynuclear cells, and fatal cases frequently showed a decreasing number of leucocytes with an increase of the polynuclears. This rule, however, was not invariable, and in some cases it was exactly reversed.

In the puerperal cases peritonitis was the usual complication. The high temperature was a sign of the severity of the infection. Antistreptococcic serum or vaccines, or in some cases a combination of both, were administered in 17 cases, with 11 recoveries and six deaths, a mortality of 35 per cent, as compared with the mortality of the remaining cases of 68 per cent.

Antistreptococcic serum is bactericidal and consequently must be used early. If its administration is delayed until the bacteriological examination is made, much valuable time is lost and good results cannot be expected. A large percentage of the cases of puerperal sepsis are due to the streptococcus. Hence it would seem wise to give antistreptococcic serum in every case without waiting for the bacteriological diagnosis. Although it is unquestionably true that autogenous vaccines are the best, during the period of waiting for this stock vaccines are advised. Burnham states that the results were especially favorable when the serum was given early, followed by autogenous vaccine. The reports of cases of true bacteriemia were extremely favorable and indicate the value of this treatment in severe blood infections.

There were 20 cases following infected wounds and abscesses, with the general mortality of 75 per cent. Most of these occurred during early adult life. The leucocyte count showed little of prognostic value, nor was the differential count significant. There were 14 cases of positive blood cultures with three recoveries and 11 deaths (88 per cent), four of which received vaccines with a mortality of only 25 per cent. The mortality of this series not treated by serum or vaccine was 100 per cent. Two cases received vaccines in combination with

antistreptococcic serum, one of which recovered. One case recovered under treatment with autogenous streptococcic vaccines, and one recovered under treatment with stock staphylococcic vaccine. In each of the cases treated by vaccines in this series one or more operations were necessary late in the course of the disease, for the relief of localized collections of pus.

There were nine cases following osteomyelitis and arthritis. They were mostly in children. Blood cultures showed the staphylococcic cases gave a lower temperature than the streptococcic. Bronchopneumonia is the most frequent complication. Vaccines were used in four cases of staphylococcic bacteriemia with two recoveries and two deaths. This compares favorably with the mortality of the entire series, which is 78 per cent. The only cases which recovered were those receiving vaccines.

Of the cases associated with endocarditis and pericarditis there were 16, all showing positive blood culture and all ending fatally. The cases are usually of long duration, many dying several months after the onset of symptoms. The results of vaccines and antistreptococcic serum were *nil*. Wynn has reported 15 cases associated with endocarditis treated with vaccines, and no recoveries. It is noted that antistreptococcic serum loses its complement after it has been kept for some time. Therefore when fresh serum is not obtainable a certain amount of fresh horse serum should be added to each dose. It is said that fresh horse serum complement is better adapted to the antistreptococcic serum than is human complement. The commercial polyvalent serum was not used, except in a few recent cases.

Burnham points out that septicemia with true bacteriemia, though a disease of exceedingly high mortality, especially in the type associated with malignant endocarditis, and in terminal infections, is in many cases amenable to treatment.

Vaccines seem to benefit the majority of cases. Antistreptococcic serum is of great value, especially during the early stage when its bactericidal powers are most pronounced, and if given in sufficient dosage during the period of invasion will often change a systemic bacteriemia into a localized infection. The combination of antistreptococcic serum used in the early stage of septicemia, together with autogenous vaccines, used as soon as they can be prepared from blood cultures, seems to be particularly beneficial. If the blood cultures are sterile, vaccines may be prepared from the local lesion, although this method is unsatisfactory and may lead to errors.

Neither sera nor vaccines, although they usually do little harm, are free from danger, and the dosage and intervals need to be carefully worked out.

The open-air treatment seems to be the best method of increasing the resistance of the patient.

CYSTIC MASTITIS.

Under this title, to which has been applied the term interstitial mastitis, cystic disease of the breast, cystadenoma, abnormal involution and senile atypical parenchymatous hypertrophy, are included such conditions as are usually encountered at about the menopause and are indicated in examination by multiple mobile nodulations, usually bilateral. In an admirable article upon the clinical aspect of this affection Judd (*Journal of the Michigan State Medical Society,* January, 1914) observes that the pathological picture varies so greatly that no less than twelve different descriptions have been published, each with a different name and each one describing a different arrangement of cells. Although many observers believe that chronic cystic mastitis is a precancerous stage and that it often undergoes malignant degeneration, no one has yet observed such development take place, though it is true that cancer is frequently seen in association with chronic cystic mastitis. MacCarty holds that there is no sharp line of demarcation, but that one condition merges into the other and that cystic mastitis is usually, if not always, associated with cancer. Nor should the diagnosis always be postponed until the

epithelial cells have penetrated the basement membrane.

It is quite true that every case of cancer of the breast is associated with some degree of chronic cystic mastitis. Up to January 1, 1913, 929 cases of chronic cystic mastitis and cancer of the breast were operated on in the Mayo clinic. Seven hundred and eleven of these were definitely malignant, though in almost all there was evidence of chronic cystic mastitis in varying degree. Two hundred and eighteen of this series were classified as chronic cystic mastitis. Of these, eleven were males, all occurring between the ages of twenty and thirty years; 207 were females, occurring between twenty and thirty years. Noting the ages of 711 cancer patients it is seen that a large percentage (79) were observed in patients between the ages of thirty and sixty. A larger proportion occurred in the cases of chronic cystic mastitis, since during that same period there were 186 cases in the total of 218 (85.3 per cent).

There was no marked difference in the side involved. In 30 the affection was bilateral. Most gave a history of having had previous mastitis, and nearly all complained of pain located in the breast itself, without radiation and associated oftentimes with soreness and sensitiveness, aggravated during menstruation. On physical examination nodules could be felt if the breast were taken up between the thumb and forefinger, while if the hand were pressed flat against the breast and the breast compressed against the wall of the chest, these nodules could not be felt. The opposite is the case in cancer. The individual nodules were small and tense. At times pressure forced a dark fluid out of the nipple. The breasts were always freely movable upon the muscles and the nodules themselves were movable in the tissues of the breast. In cancer pain, if it exists, is usually radiating. Nodules can often be best felt by broad, flat pressure. Cancer forms a single hard nodule, and the latter is not mobile in the breast tissue, always exhibiting a marked infiltration.

Judd holds that chronic mastitis is in itself benign, and except for its evident relationship to cancer and its power of causing pain would require no treatment, excepting that it is impossible to state that the condition is not associated with an early cancerous process. Knowing that practically every case of cancer of the breast has associated with it some degree of cystic mastitis, and that many of the best authorities believe that the condition occurring in women of the cancer age will become malignant in more than half the cases, it seems fair to conclude that this condition in all probability is a precancerous stage and that it should be treated as such. Diffuse, painful, nodular enlargement of both breasts in young individuals should not be operated on unless a recent change has occurred in some one of the nodules, and then this nodule should be excised for microscopic diagnosis before doing a radical operation. The removal of the nodule may be advisable in some patients for the relief of pain, but the results are by no means invariably satisfactory. Other nodules may develop with similar symptoms. Occasionally pain calls for total removal.

When a patient between the age of thirty and forty presents the clinical picture of chronic cystic mastitis radical operation is the surest method, although this undoubtedly implies many unnecessary removals. A safe rule to follow here would be to remove for a microscopical investigation the part of the breast which seems most affected and to abide by the pathologist's decision.

In patients between the ages of forty and sixty there is good authority for believing that a certain percentage change to malignancy. In these cases Judd advises removal of the entire gland with the axillary fascia and lymph nodes, leaving the muscles undisturbed. In 211 of the 218 cases in which the conservative operation was performed, in none has there been evidence of malignancy afterward. In the remaining seven cases of doubtful malignancy the radical operation was performed.

This teaching as generally accepted and practiced implies that every lumpy breast

in a woman between forty and sixty, except when incident to acute infection, should be removed, together with pectoral axillary fascia and the axillary nodes. Logically the fascia overlying the external oblique and rectus should be included in this dissection. An operation which can be performed in a reasonable length of time is astonishingly safe and would undoubtedly prevent many cases of cancer. It is one which because of the disfigurement entailed is not likely to be received by most women on the ground that this lumpy condition is a possible precursor of cancer. If they can be told it is a probable precursor in all cases their attitude, indeed that of the profession at large, will be materially changed. Whilst waiting proof to this effect the physician's duty probably lies in stating to the woman that operation is in the direction of absolute protection and safety, but in so far as clinical observation goes the typical cases of involution lead to nothing further; that atypical cases should be operated upon at once. As to the choice of removal of muscles and the leaving of them, this should probably be made upon the microscopic and macroscopic appearance of the involved tissues at the time of operation. Where there is even a suspicion of malignancy the procedure should involve both fascia and muscles.

REPORTS ON THERAPEUTIC PROGRESS.

THE TREATMENT OF SUMMER DIARRHEA.

Writing in the *Australasian Medical Gazette* of March 28, 1914, on this topic, LITCHFIELD says as to treatment it must be remembered that the cases vary much in severity, so that one may die in the initial convulsions or within a few hours, while another may show no more than some intestinal colic and a few green motions. As a matter of fact, the case mortality is low, the majority being of the less severe type. No case, however, should be neglected, as it is not uncommon for a mild case to light up and become severe. Generally speaking, one sees the worst cases early in the seasonal epidemic. At the very onset general treatment may be required, the administration of chloroform, or, better, A. C. E. mixture, may be necessary to arrest convulsions, tepid sponging or cold packs to reduce the fever, or a cautious dose of morphine to relieve pain or restlessness. Collapse is the first special symptom to watch for, and must be vigorously treated. The symptoms are pallor, restlessness, sunken eyes, cold extermities, and a rapid, weak pulse; the temperature in the rectum may be high. The immediate remedies to be applied are mustard baths, or packs, and diffusible stimulants in the shape of alcohol. If a satisfactory reaction does not occur, subcutaneous or intravenous isotonic salt solution may be given. Of intravenous injections of salt solution in such cases Litchfield has not had much experience, but from time to time has used salt solution subcutanenously, and it certainly helps in some cases, but he cannot support the extravagant claims of some that it is a never-failing remedy. The injection of sea water in his hands has also failed to come up to its reputation.

According to Embley and others a distinction has to be drawn between collapse and shock. Collapse is due to loss of fluids from the blood-vessels, while shock is a vital depression due to a sudden foreign disturbance. There is certainly a loss of fluids in this disease, but in the wide-spread sudden inflammation of the bowel there is also the element for the production of shock, and while salt solution is always valuable in collapse it is of no value in shock, which may explain why it often fails to bring about the desired reaction. Of the value of alcohol there can be no doubt, and right through the acute stage of the disease it should be given freely, well diluted. Vomiting and purging will have most likely

cleared out the intestinal tract, but a brisk purgative, such as a dose of castor oil, should be given early.

There is no specific remedy for the disease, and in the opinion of Litchfield the old plan of a continuous and gentle purgation is the best procedure, and for this purpose nothing is better than one of the mercurials. Gray powder gr. 1/6 to 1/4 every four hours, calomel gr. 1/12 to 1/6 every four hours, mercury bichloride gr. 1/80 every hour, or gr. 1/40 every two hours, are all suitable. [These seem to be large doses.—Ed.] Some prefer castor oil as an eliminative. It may be given in 10- to 20-drop doses every four hours. Epsom salts is another alternative, and may be given in 10-grain doses every four hours. Castor oil and bichloride of mercury may be given together as in the following prescription:

Ol. ricini, m. vj;
Liq. hydrarg. perchlor., B. P., m. iij;
Mucilaginis, q. s.;
Aq. carui, q. s. ad f℥ij.
Sig.: Give every four hours.

Opium and bismuth are often added to the mercurials. With regard to opium the greatest caution is necessary. Small doses often throw infants into a prolonged stupor, and induce an undesirable sluggishness of the bowels. Moreover, in the stage of exhaustion the susceptibility to opium is increased, and it should also be remembered that the child is also taking a narcotic in the shape of liberal doses of alcohol. Therefore opium should not be given as a routine. In cases, however, in which there is much pain, restlessnes, and straining, small doses of Dover's powder, gr. 1/12 to 1/6, or tr. opii 1/6 to 1/2 of a minim, every fourth hour, may be given as a temporary measure. The value of bismuth is not easy to estimate. Litchfield's experience is that when bismuth turns the motions black the prognosis is favorable, but that does not necessarily mean that the bismuth has induced the change. He has used large doses of bismuth, but has not found them more effective than small ones. Bismuth may be prescribed with gray powder or calomel or with Epsom salts. The following is an elegant prescription:

Bismuth salicylatis, gr. v;
Pulv. acaciæ, gr. v;
Aq. cinnamoni, f℥ij.
Sig.: Give every four hours.

This in conjunction with 20 minims of castor oil three times a day may be used as a routine treatment. Of the value of intestinal antiseptics Litchfield is doubtful, and he has no faith in astringents. Hot cloths applied to the belly are useful for colic, and hot baths or packs may be used to induce sleep if there be much restlessness. When the motions are very frequent, washing out the bowel with warm saline solutions relieves some of the distress. Small starch enemata may be used when the motions are dysenteric in character.

The next consideration is the diet. For some hours after the onset nothing should be given by the mouth but water. At the beginning thirst is often excessive, and may be satisfied with frequent small drinks of cold water. Subsequently whey may be given for a few days. Litchfield thinks whey to be one of the best things to give in the early stages, for besides containing some nourishment in a light form, it supplies salts to replace those drained off in the evacuations. White-wine whey is an excellent preparation in the acute stages of the disease. Mellin's food subsequently may be added to the whey and thereafter small quantities of milk, to be gradually increased as the acute symptoms wear off.

Children on the breast should not be taken off, except for a few hours or till the vomiting ceases. It is rare for babies on the breast to die of enteritis. Breast milk probably contains some immunizing bodies, and also in the quality of its salts helps to prevent the child from falling into that state of dystrophy which is such an important feature of the complaint. Albumen water, to which barley water, sugar, brandy, lime water, and cinnamon water may be added in suitable proportions, is another good food for the early stages of the disease. Methods such as these carry the case along for a few days, but then the

question of feeding often becomes more difficult instead of simple. As the child passes into the stage of exhaustion it shows a distaste for food, and will often retch at the sight of it. Moreover, if food be forced on it, vomiting occurs. It is here that the great art in the management of the case begins. The child, besides refusing food, suffers from a distressing wakefulness. It lies weak, wasted, and wrinkled, a picture of utter weariness, and yet unable to rest. The basis of the trouble, as already stated, is an exhaustion of the system, and the key-note is the exhaustion of the power of assimilation. In other words, the disease has become chiefly a nutritional one. Clearly rest is needed, and to that end individual and intelligent nursing is necessary. This attention Litchfield maintains cannot be given in a hospital, and for that reason and for the reason that reinfection from other cases may occur in convalescence, these cases should not be treated in hospitals.

The first thing necessary is to get the child to sleep. This is best done by nursing in the open air and in a cool place. Healthy children stand hot weather remarkably well, but infants suffering from enteritis always get worse on hot days, and Litchfield has frequently seen cases doing well collapse and die during a heat wave. Rested in this way the child will take a little food from time to time. In no case should food be forced on the infant, and patience will ultimately be rewarded by the child taking food more readily and progressing slowly toward convalescence. Many of the cases, however, become chronic; the diarrhea persists, and the wasting continues. These cases are variously styled athrepsia, chronic diarrhea, atrophy, and marasmus. In some cases, even when the diarrhea is no longer severe, and food is taken fairly well, the wasting goes on. No cases are more difficult to treat. The failure of nutrition is due to a failure of assimilation of food. German authorities, Finkelstein, Czerny, and others, aver that assimilation fails first with fats, and then with carbohydrates, and finally with proteids. Fats should be cut out of the food. If it appears that carbohydrates are at fault, these should be omitted and raw meat juice or casein mixture tried. Sometimes a mixture of carbohydrates, the so-called polycarbohydrate mixture, agrees better than a single carbohydrate. Keller's malt soup is largely used on the continent, and Litchfield has found it useful in some cases. Food should be given at infrequent intervals, either four- or six-hourly. Salts no doubt play an important rôle in maintaining nutrition, but we are ignorant of how to supply them in the proper form except by mother's milk. Fruit juice may do good, and is usually relished. Buttermilk is advocated by some, and may be tried. Some of the older children evince a desire for dry food, and in such cases a little stale bread, toast, or biscuit may be tried. Litchfield recently successfully treated an extreme case of atrophy in a child two years of age on Keller's malt soup, raw meat juice, and two grains of lecithin three times a day.

POSTURE IN RELATION TO GENERAL ANESTHESIA.

McCardie, in the *Proceedings of the Royal Society of Medicine* for April, 1914, reminds us that articles have been written on and many instances given of the dangers of the Trendelenburg posture. It gives much advantage to the surgeon and has many disadvantages from the patient's and anesthetist's point of view. As has been said, anesthetics may have been unjustly blamed for complications really induced by elevation of the pelvis. It is advisable that the inclination of the body should not exceed an angle of 45°. Here McCardie wishes to quote on the general question some remarks by Kocher. He very pertinently says: "A man cannot be expected to stand on his head for over half-an-hour without his circulation being seriously affected, and this is obvious to any one who has a knowledge of the mechanics of the circulation and who has witnessed the copious venous hemorrhage associated with a

dependent position of the head, as in Rose's operation. Obese people and those who suffer from disease of heart or vessels can often only obtain sleep without respiratory embarrassment when the head and shoulders are raised." How, then, can they safely bear the Trendelenburg posture?

Franz, who investigated the behavior of respiration and circulation in the Trendelenburg position, found that abdominal respiration without anesthesia was constantly weakened and thoracic breathing was little, if at all, compensatorily strengthened. During chloroform narcosis there was rather greater compensation for the weakened abdominal breathing by deepened thoracic respiration. On the whole the raised pelvic position lowered the ventilation of the lung in no small number of cases. If patients are suddenly raised to the normal position there is, with the first breath, marked lessening of abdominal and thoracic breathing, hence danger of collapse from lessened elimination. Franz asserted that there was no special damage to patients under chloroform through the Trendelenburg position and that there was very little increase in the percentage of bronchitis. He found that in the case of ether there was considerably more bronchitis after operations in the Trendelenburg than in the horizontal position.

Dr. Thomas Wilson, gynecologist to the General Hospital, Birmingham, some years ago, collected statistics of the relative frequency of pneumonia after operations in the horizontal and Trendelenburg posture. In 144 cases operated upon in the horizontal posture he had seven pneumonias; after the Trendelenburg there were ten pneumonias. These figures relate to a time previous to the use of scopolamine and morphine.

Franz noted in 825 cases of ether narcosis in the dorsal posture nineteen (2.3 per cent) cases of bronchitis, while in 493 in which pelvis was raised there were forty-four cases (8.9 per cent); 150 chloroform narcoses with the patient lying dorsally were followed by four (2.7 per cent) cases of bronchitis, and in 233 cases in the Trendelenburg position by nine (3.9 per cent), showing that with chloroform the difference is much less marked than with ether. Franz explains that frequency of bronchitis after operations in the raised pelvic posture is due to the escape of infective mouth contents into the bronchi after the patient is raised, and suggests the advisability of carefully cleansing the mouth before the change is slowly made to the dorsal position.

To illustrate the influence of the Trendelenburg posture in the causation of pulmonary embolism McCardie quotes Zweifel, who found that out of 1800 operations there were eighteen deaths from pulmonary embolism. Afterwards he no longer kept the patient's legs flexed and firmly bandaged, but placed them loosely in horizontal frames. The shoulders were supported, and the Trendelenburg position was adopted as seldom as possible. After this change the deaths from pulmonary embolism were reduced to three in 800 operations. Zweifel considers that the position favors thrombosis both by facilitating sepsis and also by its mechanical action on the blood-vessels. Intestinal obstruction, surgical emphysema, apoplexy, and also acute postoperative dilatation of the stomach have been caused by this posture.

Boveé studied eight cases of ether anesthesia and eight of chloroform anesthesia, and found that "almost no urine is received in the bladder while the Trendelenburg posture is being employed. If it can be concluded that the renal function is greatly lessened while the patient is in the Trendelenburg posture, then the dangers of that posture are at once appreciated. In renal inefficiency it would seem that the use of the Trendelenburg posture would introduce a special element of danger, and this would be more marked when ether was used than when chloroform was employed as an anesthetic."

Hewett records a case in which aphasia and renal hemiplegia followed operation in this position; the patient was twelve months in recovering. Kirkby Thomas noted a

case in which the patient was quite blind for three days and had delusions for a week.

Gatch, Gann, and Mann said that a gynecologist of wide experience once informed them that he knew of no more certain way of killing a fat woman than by leaving her for some time in the high Trendelenburg position, and they record the sudden death of a patient with aortic and mitral insufficiency and pericardial effusion who had been anesthetized with gas and oxygen and ether in the flat position, and was then placed in the lithotomy position with pelvis well elevated. They etherized dogs without any morphine and put them in the Trendelenburg position at 45° to 50° of inclination and took records of respiration and blood-pressure. The dogs died on an average in twenty minutes. The records showed that the change to head-down position caused a slight rise in blood-pressure, a slight increase in the pulse-rate, and little or no change in the rate of respiration. The breathing, however, became altered and assumed a diaphragmatic character. Respiration failed first, and then pulse and blood-pressure, which hitherto had practically showed no change, also failed. It was at first thought that death was brought about by fatigue of the diaphragm, but they found that a dog under morphine narcosis will live for hours in the head-down position without any sign of fatigue of the diaphragm—a fact demonstrated by Hill and verified by them. They conclude that failure of respiration is in some way caused by the ether. They found that the ill effects of the head-down position were due primarily to failure of respiration, and were prevented if respiration were kept stimulated by hypercapnia. Gatch, Gann, and Mann also found that in dogs the heart failed much more quickly from asphyxia in the head-down than in the horizontal position. They conclude that "in normal men or animals under anesthesia the head-down position has no ill effects." When the breathing becomes insufficient, the entire mechanism wherewith the body compensates for the effects of gravity on the circulation is deranged. The asphyxia injures the cardiac muscle and raises the blood-pressure. The head-down position at the same time insures that every drop of blood which passes through the capillaries of the abdomen and legs will quickly return to the heart, a condition not present when asphyxia occurs with the body in the horizontal or upright position. The heart then has to pump a supply of blood at least normal against an increased arterial pressure, at a time when it is poorly able to respond to the increased strain. If the patient at this time struggles or if pressure is made on his intestines the state of affairs is rendered much worse.

The conclusion of the problem of the Trendelenburg position is that it should generally be used for as short a time as possible, and not used at all on patients suffering from obesity, obstructed breathing, cardiac, renal, or arterial disease. The legs should not hang, but be supported, in order to prevent tension on the abdominal muscles and also the danger of thrombosis. The shoulders should be fixed to support the body.

THE ADVANTAGES OF THE DE RIBES BAG IN OBSTETRICS.

It may be asserted with truth that with the advent of Barnes's dilators a new era was inaugurated in obstetrical practice, and it may also be truthfully stated that even now the many practical benefits to be derived from the method of procedure which this device exemplified are not at all adequately appreciated by the great mass of practitioners. The artificial dilatation of the os uteri, in imitation of its natural opening in labor, was first practiced by Klüg, by means of the sponge tent; but this method had the disadvantage of occupying an indefinite time, the irritation produced was often painful and annoying, and, worse still, the tent sometimes became a source of infection. The Barnes rubber dilators therefore constituted a very marked advance. These, however, were not without

their disadvantages, and from time to time various improvements have been introduced in the means for the production of dilatation, until we now have at our command one superior in every way to its predecessors. This is the hydrostatic dilator known as the modified Champetier de Ribes bag. For those not familiar with it, it may be stated that the de Ribes bags, of five sizes, are conical in shape and made of canvas (and hence inelastic), covered with rubber, and the stem, through which normal salt solution or sterile water is injected into the bag, is very strongly attached to the apex, making it possible to produce moderate traction if desired.

The largest field of application for the bags is naturally in the induction of labor, and in 1912 Dr. George L. Brodhead, professor of obstetrics in the New York Post-Graduate Medical School, who is an enthusiastic advocate of their use, published in the *American Journal of Obstetrics* a series of 139 cases in which they were employed for this purpose, and in which the results were for the most part extremely gratifying. In 90 per cent of these, labor was induced by the use of not more than two bags, while in nearly 70 per cent one bag was sufficient. Anesthesia for bag introduction was usually unnecessary, as shown by the fact that an anesthetic was used in only 14 per cent of private cases and 16.6 per cent of all cases, including hospital cases, in which it was deemed advisable for clinical purposes. The two chief causes for which labor was induced were contracted pelvis (41 cases) and toxemia, including albuminuria, nephritis, and eclampsia (27 cases). In seven of the cases a change in presentation made no difference in the outcome; the possibility of this accident should be kept constantly in mind when one is using the bag method.

At a recent meeting of the Medical Association of the Greater City of New York (before which also his first paper was presented), Dr. Brodhead read a second paper on the use of the modified de Ribes bag in obstetrics, and in this he expressed the conviction that in this device we were in possession of such a valuable aid in obstetric work that we might well consider whether more extensive application could not be made of it. Although it has now been in use for a considerable number of years, it is a matter of surprise to him that greater advantage has not been taken by the profession at large of a method at once so simple and of such great value. In addition to the well-known indications for the interruption of pregnancy, he has found the bag of great service in patients where the child is large and the pelvis normal or slightly undersized. Again, he believes that in a patient at term, especially a primipara, if pains have not begun within twenty-four hours after the premature rupture of the membranes, labor should be induced with the bag. Furthermore, in primiparæ especially, the child is sometimes found to be too large to pass through the pelvis, and in his opinion many children now lost might be saved by the interruption of pregnancy. In the treatment of antepartum eclampsia he advises that medical treatment (in which he lays stress on the value of venesection in selected cases and of veratrum more generally) should be carried out as vigorously as possible, but also that pregnancy should be terminated by the induction of labor. Inasmuch as pregnancy is the direct cause of the eclampsia, he is convinced that the uterus should be emptied within a reasonable time, not by a radical procedure, such as vaginal or abdominal section, but by the slower and more physiological method. For this purpose he combines the use of the bougie, or rectal tube, with that of the bag. In this class of cases, as so many others, the latter affords an invaluable aid in the treatment, but the condition is so urgent that its employment should be supplemented by the introduction of the rectal tube, thus making the induction of labor more certain. Whatever results the ultimate statistics of the treatment by section may show, he believes that in the hands of the general practitioner the induction of labor, com-

bined with vigorous medical treatment, will continue to give the best results. When eclampsia develops in the early part of the first stage of labor, the method of choice is the use of the bag for the dilatation of the cervix, and in the latter part of the first stage, the application of forceps, podalic version, or, when the child is dead, craniotomy. Vaginal section is indicated, if at all, in those cases in which the cervix is very rigid and in which the bag and bougie have failed, after a reasonable time, to effect softening and dilatation. In a primipara at or near term, with a small, rigid vagina and a contracted pelvis, abdominal Cæsarian section would be the operation of choice.

In a considerable number of conditions there is, in Dr. Brodhead's opinion, no method of procedure comparable in results to the use of the bag. For marginal placenta previa it offers an almost ideal resource. Here the problem is how to secure full dilatation of the cervix with the least violence and loss of blood, while in no way injuring the child. One of the larger sizes should be employed, and after the cervix has been well dilated version can be performed with much greater ease and with better results for both mother and child. In central placenta previa at term, and in the marginal variety at term in primiparæ, abdominal Cæsarian section in the hands of competent operators, with proper surroundings, will undoubtedly give the best results, but, on the other hand, Cæsarian section as a routine procedure would give a much larger mortality than the conservative treatment with the bag and podalic version.

So-called accidental hemorrhage often demands the interruption of pregnancy, and here, again, the bag may offer a solution of the problem. In this instance, however, the source of bleeding is too high up to be influenced by it; so that where the hemorrhage is very profuse, or continues moderately with the bag in place, some other method of procedure is indicated, the choice lying between manual dilatation, followed by forceps or inversion, and vaginal or abdominal section. Finally, the bag is useful in cases of tedious labor, especially in primiparæ with breech presentation; and in prolonged first stage, where the patient after many hours of suffering has made but little progress, its introduction will frequently cause the pains to become more effective. In breech cases the breech of the child is a very poor dilator, and when the labor is proceeding very slowly there is no better method of expediting matters than by means of the bag.—*Boston Medical and Surgical Journal,* May 7, 1914.

THE ANTERIOR LOBE OF THE PITUITARY BODY IN ITS RELATIONSHIP TO THE EARLY GROWTH PERIOD OF BIRDS.

WULZEN in the *American Journal of Physiology* of May 1, 1914, reaches these conclusions:

1. The growth of young fowl is retarded by the addition to the diet of fresh, unmodified anterior lobe of ox pituitary. This is shown both in body weight and in length of the long bones.

2. Involution of the thymus accompanies this retardation and may bear a causal relation to it.

3. These effects are more marked in the males than in the females.

THE TECHNIQUE OF THE INTRADURAL INJECTIONS OF NEOSALVARSAN IN SYPHILIS OF THE NERVOUS SYSTEM.

In the *Journal of the American Medical Association* of April 11, 1914, WILE reminds us that in 1907 Ravaut showed that hypertonic concentrated solutions were even better tolerated than isotonic solutions. These by reason of their density are not easily diffused. Thus he was able to produce complete genital and perineal anesthesia by the injection of a single drop of water containing 2 cg. of cocaine or novocaine. If patients thus treated, however, were placed in the Trendelenburg position, there was a very rapid diffusion of the co-

caine toward the upper portion of the cord and brain, resulting in nausea and vomiting constantly within a short time. According to the position of the patient, therefore, it became possible to direct the solution toward the inferior or superior positions of the nervous system.

Ravaut employed the method of concentrated hypertonic solutions in the injection of neosalvarsan in the spinal cord, and he has recently published his results, with an account of patients thus treated. Using the following method, as outlined to Wile by Ravaut, he has been employing this treatment during the past nine months.

The solution used is 6 per cent of neosalvarsan in distilled water. This solution is hypertonic. Each drop of such a solution would contain 3 mg. of neosalvarsan. The dosage injected is from 3 to 12 mg.; that is, from 1 to 4 drops of the solution. The solution is made up as follows:

An ampoule containing 0.3 gm. of neosalvarsan is dissolved in 5 Cc. of freshly distilled water. If the ampoule contains 0.6 gm., 10 Cc. of water is used. In both solutions each drop will contain 3 mg. of the drug. The syringe employed for the injection is accurately graduated in drops. The patient is then placed in a position for a lumbar puncture, either sitting or lying, according to the choice of the operator. The puncture is then made with a needle, the end of which fits the graduated syringe. After a few drops of spinal fluid have flowed out of the cannula, or a greater quantity if a diagnostic puncture is desired at this time, the syringe is fitted into the needle, and the fluid is allowed to run back into the syringe barrel, thus mixing with the amount of the drug in the barrel. The mixed spinal fluid and drug is then gently forced into the canal, and slight suction is made on the syringe to withdraw a second amount of fluid, which washes out the needle. This is then reintroduced, the needle is quickly withdrawn, and the patient placed in the Trendelenburg position, in which position he is allowed to remain for at least one hour.

Injections thus given are exceedingly well tolerated. At most there is a slight amount of neuralgic pain, which passes off in a short time. For the most part, however, if carried out properly, the injections are quite painless. A slight amount of headache such as accompanies a lumbar puncture is, however, sometimes encountered. A slight tendency to difficulty in urination is occasionally experienced a day or two following the injection. In two cases of his own it persisted, but in both of these his technique was at fault.

HYPER-ARTERIAL-TENSION.

LICHTY, in the *American Journal of the Medical Sciences* for May, 1914, well says that the too frequent use of the sphygmomanometer, with a report of the pressure, is bad policy and positively harmful to many anxious patients. A little diplomacy or an evasive answer, with the assurance that it does not matter particularly, is good psychotherapy. Now, while the literature contains many good suggestions, it also contains many that are worthless.

Where it is impossible to prevent the accumulation of toxins there must be constant elimination either through the organs of excretion or by withdrawal of a part of the blood containing them, or they must be made more harmless with some form of medication. Elimination through the skin, kidneys, and bowels is a common procedure, the methods differing only according to individual opinions. Removal of the cause is, of course, old advice and essential. Where there is an underlying specific disease, which can be met by specific treatment, any other treatment is of secondary consideration.

Since Fischer, of Cincinnati, and others have studied the influence of alkalies upon the blood and kidneys, Lichty has used the remedies much and with undoubted advantage. Even before that time he was impressed with the benefit derived from the alkalies prescribed for many cases of hypertension in which there was an impaired

function of the kidneys, liver, and bowels, and especially in many cases of gastric hyperacidity. Of course, various methods and medicines have their adherents, and it is not the intention to underestimate the value of vasodilators, iodides, and alteratives, and even various tonics, which have their place according to indications. Rolleston has reported much benefit from the use of urotropin, salicylates, and vaccines for the toxemia of digestive disturbances. He reports especially good results in those cases of chronic disease of the gall-bladder which either do not require or do not submit to operation, as well as in cases which have not been cured by operation. Chronic toxemia and subsequent hypertension following prolonged disease of the gall-bladder, appendix, or general digestive system may be hard to believe, but fully as hard to deny. And though the term "gastrointestinal autointoxication" may be vague, it must not be forgotten. The value of frequent venesection and perhaps even the emetics used in former years is not sufficiently appreciated. The administration of thyroid extract has only been disappointing, and the high-frequency current of electricity is far from giving general satisfaction. Sedatives, such as asafetida, bromides, small doses of veronal, chloretone, chloral, and even codeine, combined with phenacetine, have been of greatest benefit; and while sedatives must be used with caution it is not always best to withhold them absolutely or too long in desperate cases. Any one will be impressed with the change in pulse and lowered tension produced through the night by the administration of a cathartic and a small dose of opium or an equally small hypodermic of morphine.

Diet, of course, is no less important than medication, but so often foolishly restricted; and while overfeeding must be prohibited, a diet of buttermilk is not a specific nor sufficient for prolonged treatment. Personal habits must be faultless. Rest, exercise, and hygiene must be carefully directed and respected. A partial and sometimes entire withdrawal from business, or a radical change of occupation, as well as change of environment and climate, all may be necessary. Domestic infelicity is a serious barrier to successful treatment. Any nervous strain from overwork and from worry, so often needless, must be relieved.

EMETINE AND IPECACUANHA: THEIR AMEBICIDAL VALUE IN PATHOGENIC AMEBIASIS.

CARTER, in an article contributed to the *Indian Medical Gazette* for March, 1914, states he has treated 168 cases in the last 18 months with emetine alone or in conjunction with ipecacuanha, and has come to the following conclusions:

Emetine administered hypodermically in doses of 1 to 2 grains per diem acts rapidly in early cases of uncomplicated amebic dysentery in Europeans and Indians.

Emetine is valueless in bacillary dysenteries. Emetine is a specific in presuppurative amebic hepatitis, and is of marked value in chronic latent amebic colitis which gives rise to the above condition.

The value of emetine in liver abscess is doubtful, and rational operative treatment without the exhibition of emetine gives as good results as it does with the drug.

Before discussing these points further, he deals with the action of ipecacuanha and emetine as checked by the microscope.

Ipecacuanha has no bactericidal effect upon B. dysenteriæ, for it grows freely in a one-ounce solution of ipecacuanha in broth.

It is doubtful if ipecacuanha inhibits the growth of any member of the bacillary dysentery group either grown in pure culture or in conjunction with the ordinary intestinal flora.

On the other hand, there is no doubt as to the amebicidal action of ipecacuanha.

Emetine has a far greater amebicidal effect than its parent drug, and this is apparent in twenty-four hours in all cases of pathogenic amebiasis. Both the pathogenic amebæ and the so-called harmless commensal amebæ rapidly vanish from the stools in early cases of amebic dysentery

on administration of a few grains of emetine hypodermically.

If amebic dysentery has lasted for a week or more, he finds that emetine injections destroy the vast majority of the amebal trophoxoites in the first twenty-four hours, but the stools rarely become ameba-free under seventy-two hours.

Further, such cases of intestinal amebiasis, even after a week's injections and apparent cure by emetine, have in some instances a tendency to relapse.

The true emetine amebicidal effect is delayed in patients who are confirmed opium eaters, and experience has shown that in spite of vigorous emetine treatment it is from the slaves of opium that we get the cases of rapidly fatal acute gangrenous dysentery. Carter believes this is due not to an antagonistic neutralization of the action of emetine by one of the many opium alkaloids, but to the effect of opium on the intestinal contents whereby the ameba-laden feces stagnate in the pouches of the large intestine.

In the treatment of human amebiasis, the doses of emetine for an adult should be at least one grain per diem, and in severe cases the drug should be pushed without hesitation. Minute doses of 1/6 grain do harm instead of good, as Carter believes they so sensitize the residual store of undestroyed amebæ in the gut wall as to render them emetine-proof. Such cases pass out from the hospital apparently cured, but are amebal cyst carriers and sources of infection to others.

THE TREATMENT OF HEMOPTYSIS WITH PITUITRIN INJECTIONS.

It is probable that no medication has ever been more disappointing for the practitioner and for the patient than the therapy of hemoptysis.

Absolute rest, trinitrin, ipecacuanha (and its recent substitute emetine), opium, ice, etc.—no medicament has proved really capable of arresting promptly a disquieting hemoptysis; and nothing is more disconcerting for the doctor, nothing more discouraging for the patient, than to see hemoptysis recurring for hours, days, and weeks, in spite of the most rational and scrupulous treatment.

It is therefore with considerable interest that we read several months ago the report communicated by Rist before the Société Médicale des Hôpitaux de Paris under the title "Treatment of Hemoptysis with the Extract of the Posterior Lobe of the Hypophyseal Gland Injected Intravenously." In this communication Rist, whose competency on the question of pulmonary affections is universally known, reports a certain number of observations in which the use of pituitrin has given really marvelous results in the treatment of hemoptysis which proved refractory to the usual therapeutic agents.

Since Rist's original work, several practitioners have used with similar success the same treatment (Leon Bernard, Armand Delille, etc.).

We have ourselves had recourse to pituitrin injections in about 20 cases, both at the Hospital Saint Sauveur and in our private practice. The results which we have obtained agree on every point with those of Rist and other authors, and we consider it interesting to draw the attention of the members of the Society of Medicine to this new and powerful antihemoptysic: the extract of the posterior lobe of the hypophyseal gland.

The patients treated by us can be divided as follows:

1. Seven tuberculous patients at the period of consolidation.
2. Three tuberculous patients at the softening period.
3. Eight tuberculous patients with cavities.
4. One secondary cancer of the lung.
5. One pulmonary infarct (with mitral stenosis).

Of these 20 cases in only one did the action of pituitrin appear *nil*, but in this case the patient refused to take rest, and the hemoptysis had the intermittent, recurring form characteristic of congestive tuberculosis; in spite of three successive

pituitrin injections the hemoptysis continued at intervals of twenty-four hours and finally stopped spontaneously.

With our 19 other patients the hemoptysis stopped, so to speak, immediately. Several times we had to repeat the injection, as the hemoptysis had recurred at intervals; the second injection proved as active as the first. In two cases only was a third injection necessary, as the hemoptysis had recurred twice.

We have practically always made an intramuscular injection of ½ Cc.; this dose represents 0.1 of fresh substance. We only had recourse to the intravenous injection when a first intramuscular injection had failed to produce immediate and lasting effect.

The injections did not cause any local painful or inflammatory reaction. They were never followed by general reactions as noted by Rist in one of his cases (pallor of the face with sensation of giddiness).

As our observations are practically identical, we shall only mention a few amongst the most typical ones:

Incipient tuberculosis. F. Hortense, nineteen years, suffering from slight hemoptysis which has now lasted eight days.

Intramuscular injection of ½ Cc. pituitrin. After two hours the hemoptysis is completely stopped; it does not recur for ten days, after which the patient leaves the hospital.

Tuberculosis, soft form. B. Marie, twenty-four years; hemoptysis of about 300 grammes within twenty-four hours, and which resists ice, morphine, and trinitrin. As after three days the hemoptysis had not diminished, an intramuscular injection of ½ Cc. pituitrin was made. Twenty minutes later the volume of the hemorrhage is already diminishing, and after one and a half hours it is completely stopped. No relapse.

Cavitary tuberculosis. C. Andre, abundant sudden hemoptysis. Within a few minutes the patient fills a spittoon, which has to be emptied several times. Morphine injections and amyl nitrite inhalations produced no effect. The state of the patient is disquieting; he becomes pale and his extremities are getting cold. An intravenous injection of ½ Cc. pituitrin solution completely stops the hemoptysis within ten minutes. The next day it recurs with the same intensity as before. With a second intravenous injection of ½ Cc. pituitrin the hemoptysis stops completely within ten minutes.

Secondary neoplasm of the lung. N. Victoire has been suffering from hemoptysis for the last eight days. Intramuscular injection of ½ Cc. pituitrin; the hemoptysis stops about two hours later for sixty hours. A second injection made then stops it again. No relapse.

Pulmonary infarct. V. Adolphe; hemoptysis in the course of bronchitis. Intravenous injection of ½ Cc. pituitrin. After fifteen minutes the hemorrhage has definitely stopped.

The use of pituitrin constitutes an extremely interesting therapeutic method from a practical point of view, and it will be useful to examine from a theoretical point of view the mechanism of action of this product.

This mechanism is not yet completely explained. The first attempts in this direction made by Rist were the result of a report from Wiggers. According to Wiggers the extract of the posterior lobe of the hypophyseal gland increases the arterial tension in the general circulation in a much more lasting manner than adrenalin, and it diminishes the tension in the pulmonary artery; it is the only product capable of diminishing or stopping pulmonary hemorrhages induced in animals. As Rist himself points out, this explanation is not entirely sufficient. As a matter of fact the quantity of pituitrin necessary to stop hemoptysis is very small, and the action of such a small dose of pituitrin on the blood-pressure is hardly noticeable. The patients on whom we have been able to measure the arterial tension were all affected with peripheral hypotension. We have scarcely noticed, and this with a few of them only, an increase of the radial tension of 1 Cc. mercury following the injection of ½ Cc.

pituitrin. With most of them we have not even noticed this small increase. Furthermore if Wiggers's explanation were entirely acceptable, adrenalin should produce effects similar to those of pituitrin. However, Wiggers in his experiments has obtained nothing with adrenalin, whilst the hypophyseal extract proved to be very active; and in human patients adrenalin, which is so efficacious in the treatment of hemorrhages of general circulation, is incapable of stopping hemoptysis having its seat in the pulmonary system. Finally it does not seem to us to be demonstrated that tuberculous patients who expectorate blood are always affected with hypertension of the small circulation. It appears to us that nothing is more variable than the relations between the peripheral circulation, the small circulation, and the hemoptysis. Without believing with Leon Bernard that the immense majority of hemoptysis takes place with tuberculous patients, whose arterial tension is low, we think that one has exaggerated the rôle of hypertension in the genesis of hemoptysis. A hemorrhage which is localized at the tuberculous zone does not necessarily imply, as an indispensable pathogenic condition, a state of exaggerated tension in the small circulation any more than the subcutaneous hemorrhage of purpura or intestinal hemorrhages of typhoid necessarily imply a hypertension in the great circulation.

Consequently we can hardly accept the interpretation of Wiggers as regards the mode of action of the hypophyseal extract in the treatment of hemoptysis.

This insufficiency of the interpretation of Wiggers has been noticed by others than ourselves. Following the Rist communication Emile Weil, recalling the previous experiments which he made with Boye, pointed out at the next sitting of the Société Médicale des Hôpitaux de Paris that the anterior lobe of the hypophysis possesses an anticoagulating property, whilst the posterior lobe possesses a coagulating effect. According to Weil and Boye, this coagulating power of the posterior lobe of the hypophysis on both the normal and pathological blood of man and rabbit is such that in this respect no other extract can be compared with the extract of the posterior lobe of the hypophysis. The researches of Weil and Boye have been confirmed by Livon. Such a marked coagulating power cannot fail to play a great part in the action of pituitrin in hemoptysis.

This action is perhaps even more complicated. We know, as a matter of fact, the remarkable impetus which pituitrin gives to the uterine contraction in obstetrics. Can we not suppose that the same excitation is also produced on the unstriped muscular fibers of the pulmonary vessels? As far as we are concerned we share this hypothesis advanced by Rist.

In conclusion, the mechanism of the action of pituitrin on hemoptysis, although it is only incompletely explained at present, seems to be composed of different factors: diminution of the tension in the small circulation, stimulating action on the contraction of the unstriped muscles of the pulmonary vessels, very energetic coagulating action.

Whatever this mechanism, the important fact is the extremely energetic therapeutic influence which pituitrin exercises on hemoptysis. This is the fact that we mean to emphasize.—*Écho Médical du Nord,* No. 903, 1914.

WIRING WITH ELECTROLYSIS FOR AORTIC ANEURISM.

HARE reports in the *Journal of the American Medical Association* of April 18, 1914, several cases treated by this method and concludes as follows:

1. The fact that no accident has occurred in any of the twenty-two (now twenty-five) operations he has performed leads him to believe that this seemingly radical operation is not a dangerous one, the more so as he has no knowledge of any accident having taken place when the operation was properly performed by others. In one unreported case an attempt to wire a fusiform aneurism of the carotid artery resulted almost immediately in hemiplegia,

and in another unreported case the mistake of using the negative pole in the growth loosened the clot already present and caused multiple emboli.

2. The operation is the only one that offers material hope of prolonging life, this having been prolonged in one case at least five years.

3. It is justified by the prompt relief of pain which nearly always ensues, and lasts, unless the growth, extending in another direction, creates a new source of pain.

4. The diagnosis of saccular aneurism should always be confirmed by Roentgen-ray examination, as this operation is contraindicated in fusiform aneurism for obvious reasons.

5. Great care is absolutely necessary that properly prepared wire be employed.

To these conclusions he would now add that, after having performed this operation twenty-five times, he can see no reason for changing the views heretofore expressed, but he desires to emphasize once more the fact that only specially prepared wire can be used, and that silver wire, because it does not coil, is an unsuitable agent.

It has been stated that this operation is useless, because the nature of the lesion is such that cure cannot be effected. If by cure is meant the total disappearance of all signs of the disease there is, of course, no cure; but if by "cure" we mean relief from agonizing pain, diminution in the size of the growth, clearing up of distressing pressure symptoms, and prolongation of life when death seems very imminent, then the operation is justified, the more so as it seems to be of little danger. One patient had a very marked bulging mass which was described as being as large as an orange. Inspection now fails to show any such mass. He has yet to see a patient who did not receive at least temporary and marked benefit from wiring and electrolysis.

This operation, like all other operations, largely depends for its success on how it is done. If too much current is used, serious damage and necrosis of tissues may be induced, and Hare is led to believe that in several cases, which have not been reported by others, such an error in technique has led to bad results. Thus in several of these patients he was told the current was so strong that the wire "burnt off." Such a current cooks the aneurism. If the street current is used it is necessary not only that the table on which the patient lies should be insulated, but also that the operator wear thick, rubber-soled shoes and stand on a perfectly dry floor.

PITUITRIN IN SIXTY CASES OF LABOR.

In the *British Medical Journal* of April 25, 1914, HENDLEY makes a report. He states that pituitrin, or pituitary infundibular extract, is now becoming generally accepted as a valuable aid to the obstetrician. Its property of inducing strong rhythmical contractions of the uterus, first pointed out by Dale, is so marked that it is surprising that it has not been more generally adopted by the practitioner. In these circumstances, this record of sixty cases may prove a sufficient stimulus to those who have not experienced its merits to induce them to try it in the early future.

It is necessary, however, to observe ordinary caution in its administration, and great care should be taken where there is any obstruction. It is a very valuable aid toward shortening the long and often exhausting first stage of labor, especially in those cases in which the membranes rupture early, and a dry labor results.

It has proved in Hendley's hands to be a powerful remedy in cases in which shock and collapse have supervened on prolonged chloroform anesthesia, not infrequently inseparable from a difficult case of contracted pelvis. In patients of a nervous temperament pituitrin has also a great influence, and the excitement is frequently calmed in an extraordinary manner.

Recovery is almost invariably hastened, and patients who have previously had pituitrin nearly always ask for its repetition. Hendley asserts he has never had a case of postpartum retention of urine since using this remedy; indeed, in one case in

which it might reasonably have been expected, a free and copious emission of urine resulted within one hour of its administration. As a controller of hemorrhage pituitrin ranks very highly in his estimation; in one case it controlled the hemorrhage when a previous injection of ernutin had failed. Some writers have recorded postpartum hemorrhages as a sequel of pituitrin administration, when delivery of the child did not take place until an hour or more after its administration. Hendley has observed this on a few occasions, but if a second injection be given this does not as a rule occur. In any case a further dose will almost always control the hemorrhage, as it did in three of his cases. In one case the patient in five previous confinements had had postpartum hemorrhage, while on this occasion it was particularly noticeable by its absence.

Hendley has worked out the following technique as the best routine method for the administration of pituitrin. When the os admits one or two fingers, but not before, he injects into the gluteal muscles from 0.75 to 1.0 Cc. of pituitrin; if the child is not born within fifty minutes he repeats if necessary. If postpartum hemorrhage supervenes, a further injection will almost always control it. Care should be taken to make sure that the syringe and needle are quite free from alcohol before filling with the pituitrin, as alcohol is said to interfere with its action.

EMETINE AND LIVER ABSCESS.

NOTT, in the *Indiana Medical Gazette* for March, 1914, is of the opinion that aspiration is called for in that very serious class of large acute liver abscesses with acute dysenteric symptoms and grave general depression, and the earlier this is performed the better. He is convinced that drainage with excision of a portion of a rib in this class of case is a very fatal procedure. He advocates repeated aspirations with the exhibition of emetine both subcutaneously and into the cavity of the abscess after aspiration, though probably the former alone is equally efficacious and more certain. This procedure in some cases will be sufficient to bring about recovery, in others it will enable the general strength to be recuperated, the fever to largely subside, and it may be possible after several aspirations to drain by the open method with some chance of success.

For large single abscesses of a less acute character seen in a late stage and in patients in reasonable condition, Nott would aspirate at least once, but in this class of cases he quite thinks under good conditions as regards maintenance of asepsis that there is a good deal to be said for immediate incision and drainage.

For smaller superficial abscesses such as those met with in the left lobe of the liver, if diagnosed in an early stage, he would aspirate; in a later stage when the skin is involved he would incise. In any case this class does well, and statistics which include a number of such cases will always be good.

EMETINE IN AMEBIC DYSENTERY.

In the *Indiana Medical Gazette* for March, 1914, MUNRO in writing on this topic says it is obvious in his cases that emetine gave much better results in those instances in which amebæ were found than in those cases in which amebæ were not found. Four grains of the drug was the maximum amount given to any of the successful cases, and two grains proved sufficient in some. With regard to the length of stay of these cases in hospital compared with those treated by ipecacuanha before the days of emetine, it would appear from the hospital records that emetine has shortened the period of treatment; but to set his short series of cases against a long series of past cases of whose other circumstances nothing is known, hardly seems fair. The only way to really compare emetine with ipecacuanha as to rapidity of effect is to have a series of amebic cases running parallel—the one treated by emetine only, and the other by ipecacuanha

only. Munro regrets much that he did not try to manage this, even with the very few cases he had to treat. Cases of hepatitis have naturally not been included in his notes; had they been, the rapidity of the effect of emetine as compared to ipecacuanha would have been more clearly brought out. While unconvinced of the great superiority of emetine over ipecacunaha in cases of acute amebic dysentery, as he has not seen them fairly tried against each other in a series of parallel cases as suggested above, the rapid and striking results that Munro has seen from emetine in cases of hepatitis (presumably amebic) have convinced him of its superiority over ipecacuanha in this complaint.

THE TREATMENT OF RINGWORM.

FOLEY in the *British Medical Journal* of March 2, 1914, writes that ringworm is such an intractable disease, such a bugbear to schoolmasters and parents of children attending school, that any quicker and more efficient treatment than that known to us at present would be welcomed. Hence Foley is glad to bring before school medical officers and others a very simple and efficient treatment which leads to rapid cure. The part, being first washed with a strong solution of sodium bicarbonate, is swabbed with a piece of lint moistened with spirit of ether to remove grease, painted with tincture of iodine, and an ethyl chloride spray immediately applied. Foley finds it best to work with a pair of ethyl chloride tubes in each hand, as a larger area is covered in quicker time. The deeper the disease process the longer the spray must be applied. It should be used until the integument gets china-white and then stopped. It will be found that in twenty-four to forty-eight hours the patch of ringworm has become quiescent. The smallest commencing spots should be looked for and treated in a similar manner; they also will disappear in from a few days to a week. In ringworm of the scalp three or four applications of iodine and spray are required, but on the face or smoother surfaces one application suffices.

Foley has succeeded in curing ringworm of months' standing in one week by this method, and it has never failed him since he first thought it out over a year ago. In most of his cases the patients got infected from cattle.

Ethyl iodide readily destroys the tubercle bacillus, and thus might be expected to destroy hyphomycetes; but an ointment of ethyl iodide 25 per cent, Foley found, will blister, and thus his central idea was to obtain a very minute amount of ethyl iodide which might not penetrate further than the outer layer of the skin by painting on tincture of iodine and next applying the ethyl chloride spray. He considered a minute amount of ethyl iodide would be formed at the site of the disease sufficient to penetrate the upper epidermic layers, affected by the freezing action of the ethyl chloride.

PITUITARY PRODUCTS IN OBSTETRICS.

HERRON in the *St. Paul Medical Journal* for April, 1914, says he has attended 115 labors in 105 patients since commencing to use pituitrin, and has so treated 31 cases. He has also attended 17 abortions in 14 patients in the same time, but has not tried it on them because he has had excellent results in all cases from promptly emptying the uterus. However, none were septic. In 72 delivered without pituitrin labor averaged between ten and eleven hours; others could not give accurate time statements. In 26 in whom he used pituitrin labor averaged eleven hours before its use and 1¼ hours after the second or single dose; all but a few much less than 1¼ hours. In the last five he gave it intramuscularly, formerly subcutaneously. In five the indication was hemorrhage after a normal second and third stage of labor. In each he gave two drachms of fluid extract of ergot and massaged the uterus. Hemorrhage ensued in thirty to sixty minutes with relaxed, flabby uterus. All

but one reacted well and promptly. One case had to be packed after 2 Cc. subcutaneously had failed, as did also 2 Cc. ergotin, hot douches, and massage. Herron asserts that if he should meet such a case again, he would give up to 4 Cc. intramuscularly.

In 12 cases he used 1 Cc.; in 19, 2 Cc. Fifteen completed labor without further aid, in all of whom he anticipated either very long and exhausting labor or failure to deliver without operative aid. He has not given it until he has watched the patient at least an hour for progress without it, although he may some time be compelled to do so. None of his group were primiparæ. Four received 2 Cc., two on account of edema and mitral insufficiency; while in the other two he gave the first dose before sufficient dilatation existed—a mistake he will not repeat, he asserts, with his present experience. In four he did podalic version, three shoulder and one face presentations. All were exhausted women who had planned to get along without a physician and to whom he came only after prolonged labor. Each had 1 Cc. with renewal of pains; each stood chloroform nicely, had healthy babies, and recovered normally.

In six cases he delivered by forceps—twice for narrow pelvis, twice for very large babies, and twice for failing hearts. All took chloroform well, had no hemorrhage or puerperal trouble, and the babies were healthy. He noted temporary slowing of the pulse after injection. For lack of help and time he did not make blood-pressure tests after its use. He has found, as all the literature states, that it must not be used until good dilatation exists or at least till the cervix is soft and will stretch readily. This point is essential, for cervical laceration may ensue, or the child may suffer from too prolonged compression. Or if a rigid perineum exists, especially in primiparæ, it should be manually dilated. Perhaps episiotomy might be of value in such conditions. He has not tried it. Moreover, he thinks fortunately, pituitrin is much less likely to react if the cervix is closed or nearly so. On the other hand it is more prompt and more reliable than any other oxytocic, more powerful than any but ergot, and, if used only as indicated, harmless to both patients. So far he has used it but four times in primiparæ. He sees no difference in action in them. He has seen no undue after-pains, although he has had verbal reports that such do occur.

Since writing this he has found a report by Schlossberger of two cases of eclampsia with coma and convulsions that recovered and completed labor under 1 Cc. repeated once. While the number is small, the fact that anuria was present in both suggests its use in this condition. Herron states he would not rely on it, but would use in addition other recognized methods.

THE PRESENT POSITION OF VENESECTION.

The *Canadian Medical Association Journal* for April, 1914, contains an article by RUDOLF in which he reminds us that the old practitioners used to bleed by cutting the skin and vein at one incision, but nowadays it seems safer to expose the vein by an incision right over it, and then incise it by a second cut. Rudolf finds it is much easier to do this if the vein is picked up with a fine pair of forceps. No stitches are necessary. Recently he has been using a method which is neater and cleaner. It consists in puncturing the vein through the skin with a sharp needle of 2 mm. diameter. The blood flows freely through this, and if a piece of tubing, previously filled with water, be attached to the needle and this be led into a vessel, then as much negative pressure may be used as desired, and thus the chances of clotting in the needle are lessened.

Conclusions: In many cases venesection is the most powerful method of treatment at our command, and, if used with great discretion, seems to be free from any bad effects. It is often indicated in the following cases:

(*a*) Heart failure, acute or chronic, with marked cyanosis.

(*b*) Acute toxemias, such as acute uremia.

(*c*) Acute infections, such as typhoid fever and pneumonia. [We think it a doubtful practice in typhoid fever.—ED.]

(*d*) Chronic toxemias, especially those with high blood-pressure.

(*e*) It may be occasionally used in cases in which we wish to increase the coagulability of the blood, as in deep hemorrhages, and in aneurism.

WHY SODIUM CITRATE PREVENTS CURDLING OF MILK BY RENNIN.

BOSWORTH and VAN SLYKE in the *American Journal of Diseases of Children* for April, 1914, reach these conclusions:

1. The addition of sodium citrate to milk in infant feeding is a frequent practice in cases in which the use of normal milk results in the formation of large lumps of tough indigestible curd in the stomach. The favorable results attending such use of sodium citrate have never been explained on the basis of actual investigation.

2. Work previously done by the authors suggested a chemical explanation of the observed facts and led them to test the matter by an experimental study of the action of sodium citrate on milk.

3. The addition of sodium citrate to normal milk increases the amount of soluble calcium in the milk, this increase resulting from a reaction between the calcium caseinate of the milk and sodium citrate, by which is formed sodium caseinate (or calcium-sodium caseinate) and calcium citrate. The reaction is reversible.

4. The curdling of milk by rennin is delayed by the presence of sodium citrate; when there is added 0.400 gm. of sodium citrate per 100 Cc. of milk (equal to 1.7 grains per ounce), no curdling takes place.

5. The curd produced by rennin in the presence of small amounts of sodium citrate (0.050 to 0.350 gm. per 100 Cc. or 0.20 to 1.5 grains per ounce) increases in softness of consistency as the amount of sodium citrate in the milk increases.

6. The results of their work indicate that at the point at which rennin fails to curdle milk we have in place of the calcium caseinate of normal milk a double salt of calcium-sodium caseinate; this double salt, when rennin is added, is changed to a calcium-sodium paracaseinate which, owing to the presence of the sodium, is not curdled.

7. The practice of adding sodium citrate to milk at the rate of 1 to 2 grains of citrate per ounce of milk appears to have a satisfactory chemical basis in the reaction between the sodium citrate and the calcium caseinate of the milk. The amount added is governed by the object in view, viz., whether it is desired to prevent curdling or only modify the character of the curd in respect to softness.

THE ART OF PRESCRIBING.

LUFF in the *British Medical Journal* of March 21, 1914, gives a few illustrations of some prescriptions which he has found most useful in his own practice. Potassium iodide is a drug that he very frequently prescribes in the treatment of the various forms of fibrositis, and invariably orders it in the following combination. Taking an average dose for an adult, it consists of: Potassium iodide 10 grains, the compound glycerophosphate syrup (B. P. C.) 2 drachms, spirit of chloroform 12 minims, and peppermint water to the fluidounce. The compound glycerophosphate syrup disguises the taste and counteracts the depressing effect of the iodide, while the spirit of chloroform and peppermint water act as preservatives, and so prevent the bacterial growth which otherwise would occur in the diluted syrup.

An extremely useful mixture for the relief of irritable cough, and especially of the troublesome post-influenzal cough, consists of morphine hydrochloride 1/24 grain, heroin hydrochloride 1/24 grain, apomorphine hydrochloride 1/48, dilute hydrochloric acid 5 minims, syrup of Virginian prune ½ drachm, and chloroform water to half an ounce. This constitutes the tablespoonful dose, which should be taken every four hours. The medicine is very

palatable, and the presence of the hydrochloric acid effectually prevents the precipitation of any of the alkaloids.

For the relief of pain, when the employment of morphine is not desired a combination of analgesics is much more effective than the use of one alone. A most useful prescription for the relief of the pain of sciatica consists of novaspirin 7 grains, pyramidon 6 grains, quinine salicylate 1½ grains, and codeia 1/3 grain. This is prescribed in a cachet, which is to be taken every four hours.

A simple but effective medicine for the relief of ordinary headache consists of ammonium bromide 10 grains, phenazone 10 grains, caffeine citrate 5 grains, and chloroform water 1 fluidounce. This constitutes a single dose, which as a rule rapidly relieves the headache, but if necessary it may be repeated in two hours.

The most effective combination in Luff's experience for the internal treatment of acute and subacute gout is a pill containing colchicine 1/70 grain, sugar of milk ½ grain, extract of nux vomica ¼ grain, extract of hyoscyamus ½ grain, and extract of gentian sufficient to make the pill. The object of the sugar of milk is to allow the colchicine to be triturated with it before working it up with the extracts, as otherwise the minute amount of the alkaloid would not be evenly diffused throughout the pill mass, and so the risk of a poisonous dose of colchicine getting into one pill might be incurred. One pill is to be taken every three or four hours according to the severity of the attack, which is rapidly relieved by this treatment.

Gastric flatulence is a very common and annoying ailment, for which almost immediate relief can be obtained by a mixture containing in each dose aromatic spirit of ammonia 25 minims, spirit of chloroform 15 minims, spirit of peppermint 12 minims, and spirit of cajuput 8 minims. This combination constitutes a teaspoonful dose, which is to be taken in a wineglassful of water whenever the flatulence is troublesome.

For external use in the relief of pain, whether due to fibrositis, neuritis, or neuralgia, the following combination is most useful: Chloral hydrate 6 drachms, camphor 6 drachms, and menthol 3 drachms are well rubbed together in a mortar, when the three solids form a liquid without the addition of any fluid. This liquid should be painted over the painful area and gently rubbed in, when rapid relief from the pain is usually obtained. For those patients who object to the sensation of coldness produced by the menthol the equal parts of chloral hydrate and camphor can be used instead, as they also form a liquid when triturated together.

In conclusion, he begs of the student to endeavor during his studentship to cultivate by every means in his power a knowledge of the art of prescribing, and never to become the instrument by which patients may be tempted to drift into the habit of self-treatment by easily administered drugs —a habit which is tending to displace the true therapeutic art, and which is gradually diverting into the hands of purely commercial men that function which should remain the prerogative and the glory of the medical man.

CLINICAL REPORT OF FIVE HUNDRED AND SEVENTY-ONE CASES OF PULMONARY TUBERCULOSIS TREATED WITH TUBERCULIN.

SHALET, in the *Journal of the American Medical Association* of April 11, 1914, reports these results:

In figuring the result of tuberculin therapy in pulmonary tuberculosis, the most important and at the same time the most difficult factor to standardize is the patient and his disease. For one thing, there is no known way of determining with any degree of exactness the length of time a given tuberculosis patient has had the disease—or in other words, the resistance. This fact makes it very difficult to determine accurately how much of the improvement during tuberculin administration was due to that, and how much to the native resistance of the patient to his disease, supplemented by the usual sanatorium treatment.

Therefore, until more exact means of determining the extent of the patient's resistance to his infection is discovered, we have to rely solely on clinical observation. One thing which we do know beyond question is the specific effect for good of subcutaneous injections of tuberculin on localized visible forms of tuberculosis in the eye, skin, glands, etc. This has been noted repeatedly by numerous independent observers all over the world. While none but the overenthusiastic claim as much for it in the treatment of pulmonary tuberculosis, still it is no more than to be expected that it would have some definite good effect in that disease, and Shalet has found this to be as follows:

The first few injections will slightly increase expectoration, making it more fluid and brought up with less coughing; later on expectoration, and with it cough, is distinctly diminished. The tendency to toxic manifestations of the disease, such as rapid pulse, dyspnea, and slight elevation of temperature on exertion, is inhibited to a great degree in those who receive tuberculin as opposed to those who do not. Routine examination of the sputum will disclose a much greater tendency (50 per cent) to absence of bacilli in those who are treated. Physical examination of the chest will show the lesion to be much less active; the râles, particularly, will be drier and scant. There is a somewhat better showing in weight increase in the tuberculin-treated.

To sum up, the most constant effects of tuberculin in those who do well under it are the diminished sputum and cough, particularly when the latter is dependent on the amount of sputum, and the distinct tendency for the sputum to become non-bacillary, thus demonstrating clinically the specific effect of the tuberculin on the site of the disease. The other signs of improvement are the natural results of the diminished activity of the lesion.

The net results of tuberculin treatment in the patients forming the basis for this paper may be summarized as follows:

1. Those who were distinctly improved and apparently cured (clinically), 25 per cent.

2. The indifferent (60 per cent), who may be subdivided into (*a*) 40 per cent who respond indifferently while the tuberculin was continued, but on the cessation of which did distinctly better than before tuberculin treatment, an indeterminate number of whom often come in later under 1, and (*b*) 20 per cent who remain indifferent.

3. Those who are apparently made worse (15 per cent); that is, under the use of the same dosage as the others in the class, but who do not only come in under 2, but some even under 1, if the tuberculin is given in doses attenuated enough to meet their hypersensitiveness.

4. Effect of tuberculin on localized visible tuberculosis such as fistulæ in ano, glands, etc., which is specific, particularly in the case of tuberculous glands in the neck, in which condition tuberculin is by far the treatment of choice.

While the number of the distinctly improved and apparently cured under sanatorium care and tuberculin does not appear to be any greater than under sanatorium care alone, the value of the former is in bringing up to the same percentage a type of case that under sanatorium care only would by no means fare so well, if clinical experience is worth anything.

OXYTOCIC DRUGS DURING LABOR.

GILLESPIE, in the *Lancet-Clinic* of May 16, 1914, says that a careful study of obstetric problems as they present themselves at the bedside has been convincing in that

1. There is usually some mechanical reason for the inefficiency of uterine contractions, and a careful examination will disclose the cause in some condition which may be manually corrected.

2. That any case which may be safely assisted by the use of oxytocic drugs may be safely assisted by forceps.

3. That instruments in the hands of an intelligent man, who knows how to use them, are safe in many cases in which

oxytocic drugs would result fatally to the child, or disastrously to the mother.

Most new agents must be studied with great care in their clinical use before their proper field of usefulness can be determined. The pituitary extract has, Gillespie believes, the same dangers as ergot before the birth of the child. It has the advantage that its effect may be very promptly secured, and that spastic contraction is not so vise-like as that of ergot. In cases of uterine exhaustion when we have reason to fear postpartum hemorrhage, it may be given as the head is coming over the perineum with reasonable expectation of securing firm uterine contractions in the third stage of labor, without so much danger of placental incarceration as attends the use of ergot.

Where the placenta remains attached to the uterine wall, and must be separated, the giving of ergot before attempting manual extraction increases greatly the difficulty of introducing the hand, and we have, therefore, in the past given it only after the placenta is separated. This has left an interval of danger from hemorrhage until the effects of ergot could be secured. The lesser potency of the pituitary extract renders it safe to give it before attempting to separate the placenta, and thus bridge, in a measure, this interval of danger. Its effects are so evanescent, however, that in such a case ergot should also be given to secure more permanent contraction and retraction of the uterus.

Another field of usefulness for the new oxytocic agent would seem to present itself in assisting in therapeutic abortion. While cases are rare in which therapeutic abortion is called for, when the condition does demand it, anything which adds to the certainty of the means adopted should be gratefully accepted. If the cervix is firm and narrow, one of the best means is to pack the lower uterine segment tightly with sterile gauze. In some cases the reflexes seem to be in abeyance, and undue delay may occur before the uterus responds to the stimulus. As we are not compelled to consider the safety of the fetus in such cases, pituitary extract may with safety be given to start up the premature labor. Under such conditions, if contractions are once begun, we will usually have no subsequent delay.

Many of the claims put forth for it in the literature would lead one to assume that the observers were innocent of general obstetric knowledge and incapable of making ordinary clinical observations, or drawing conclusions from facts observed. Being convinced that the occasions where it may rationally be employed are extremely rare, and that it possesses all the dangers which compelled the abandonment of ergot, although in probably less degree, Gillespie thought it timely to issue a note of warning against its indiscriminate administration.

HABITUAL CONSTIPATION AND ITS TREATMENT.

In the *New York Medical Journal* of May 30, 1914, EINHORN discusses this well-worn topic. He thinks, with regard to diet, that it should be arranged to facilitate the bowel movements. It is done in the majority of cases by giving bulky foods, fruit, and salads that contain a great deal of organic acids and cellulose, matter which is not digested, bulky foods serving to bring on more efficient peristalsis. Enough water should be given to the patient. Butter is another substance which is good. Special forms of diet have sometimes to be arranged to suit the condition of the stomach, but in a general way a very liberal diet should be maintained. Bran acts well—bran bread. Some physicians prescribe bran flour, prepared or eaten in its natural state, one tablespoonful, three or four times a day.

Schmidt, acting on his theory that there is too great utilization of the foods taken, introduced agar as a remedy for constipation, but he found that while agar is good it is not enough to bring on a movement, so he combined it with cascara, to regulate the bowels. A few years ago Einhorn thought he would like to have some other remedy which would act in a similar way,

and he made a combination of phenolphthalein and agar. This contains three per cent of phenolphthalein, and taken twice a day, or sometimes three times a day, in teaspoonful doses, is very beneficial. One advantage of these agar preparations is that the remedy in the agar does not come out quickly from the agar substance, but is absorbed slowly through osmosis, and in this way covers a large area of the intestine. The intestine is long, and if we want to give special remedies for the bowel it is well to give them so that they shall be spread out over a large area. This the agar does, and it also takes up water. That is another quality which is favorable for affections of the bowels, for it lubricates the fecal matter. In constipation too much moisture is taken away by the system, and the fecal matter is too dry and can hardly be pushed along, but the agar swells up and the water in it does not come out; the agar has a greater affinity for the water and retains it, while with other matter it is released more readily. That is the idea in combining agar with remedies for the bowels. Einhorn has carried the same principle further and has combined agar with tannic acid for the treatment of diarrhea—to obtain the effect of lubrication and of having the remedy carried over a large area.

Phenolphthalein-agar, a teaspoonful twice a day, is the usual dose. This should not be ground up too fine; if it were in the form of a powder it would be partly absorbed and less efficacious. For this reason the agar flakes should be somewhat bigger. Then Einhorn has a combination of rhubarb-agar, also about three per cent. This is a little weaker than the phenolphthalein-agar and can be taken in the same quantity as the latter. Although as a rule we should not use too many remedies to cure constipation, still we often cannot get along without them. It is easy enough to say do not take anything, but if the patient has no movement, he will be dissatisfied, and will leave us and go to another physician. Therefore mild cathartic remedies can and should be given, but the patient should be impressed with the importance of taking as little as possible; trying a certain amount for a little while, and then reducing it slowly and little by little. That is the principal thing. If we can get the patient to do that, we can get him to a point where after a while he does not need to take anything.

Along with the mild cathartic remedy we can also institute a proper diet and a right way of living. There are many other means of helping constipation. There are physical means of treatment, such as massage of the bowel and abdomen. That can be done either by an experienced masseur, or by automassage. The patient can massage the abdomen every morning for five minutes or so, going along with his closed fist over the colon. Professor Sahli advises for this purpose a five-pound cannon-ball, which the patient passes over the abdomen, rolling it around in a circle. There are some cases, however, in which massage is not advisable—cases of very lax abdominal walls especially, in which the organs are not well protected, so to speak. In such cases, if the massage is a little too rough, inflammation of some organ may result.

Electricity has been applied, by putting one electrode on the abdomen and the other at the back or in the rectum. That is best done with an electrode which permits the water to come slowly into the rectum. Static electricity has been employed by Douner and others in France. Then there are gymnastic exercises for the abdominal wall—bending, sitting up, rowing, walking, etc.—all that comes under the head of exercises for the strengthening of the abdominal muscles.

Hydrotherapy also has been used—having a douche for the abdomen, going over the entire abdomen, over the colon, etc. Injections into the bowel also form another mechanical measure—plain saline injections, about a quart at a time, may be employed. Einhorn usually advises that these be given in the evening, so that the

patient has a chance to have a bowel movement spontaneously, and if that fails he can then take the injection.

Kussmaul and Fleiner recommend olive oil injections as a remedy for habitual constipation, and there is a great deal of good in this treatment. Give six to ten ounces of olive oil at blood temperature, injected into the bowel to be retained over night, and there is usually a movement in the morning. This can be used every night for three or four weeks, then every other night for three weeks, and then twice a week for a long while. Sometimes this treatment is followed by very good results. It is especially important in spasmodic forms of constipation. Boas believes that there is no special form of spasmodic constipation. Schmidt and others think that it is only caused by inflammatory conditions accompanying habitual constipation. This form is benefited more than others by the olive oil treatment. Olive oil in tablespoonful doses has been given by the mouth by Westphalen. Later on liquid paraffin was advocated by Sir Arbuthnot Lane, of London, for the same purpose. A teaspoonful to a tablespoonful of liquid paraffin given twice a day acts well in some cases. The latter has also been advantageously employed in the form of small rectal enemas of three to six ounces.

Ultimately, operations have been advocated for the treatment of habitual constipation. Einhorn is not much in favor of them. Lane's operation and the autointoxication theory go together. He spoke against the one before. Einhorn speaks against the other now. A patient is frightened and told that he should be operated upon. He does not know what to do, and he is operated upon. Afterward he may or may not be better, but it is not the thing to be done excepting in rare instances.

Not long ago Einhorn was called in consultation, and was told that the patient had a pronounced Lane's kink and antointoxication, and that operation was required. The patient was ready, but said that he wanted Einhorn's opinion first, who did not want to say anything against the opinion of the attending physician, but suggested that a certain form of treatment be tried for one week, and if the patient did not improve that he could be operated upon. In a week the patient returned and said he was feeling better, but that he was still urged to have an operation. Einhorn told him that he was his own master and could do as he liked. He was not operated upon and he is now very well. One should not be too hasty in recommending an operation for this condition. There is no need for haste. Try one thing, and then another, and if the patient is not in a hurry it is nearly always possible to relieve the condition by the measures above described.

GAS-OXYGEN-NOVOCAINE ANESTHESIA.

The *Wisconsin Medical Journal* for May, 1914, contains an article by BANNEN on this subject in which he states that he believes the following conclusions are justified:

1. That anesthesia as generally administered has not been accorded sufficient care, and is too often grossly abused, by incompetent anesthetists.

2. The records of anesthesia and its results are poorly and unscientifically kept.

3. That gas, oxygen and novocaine anesthesia, in the hands of experienced and competent anesthetists and with a skilled operator, is a safe and satisfactory anesthetic for most cases of major operations.

4. That the successful use of nitrous-oxide-oxygen and novocaine requires, on the part of the surgeon, greater skill in operating and more careful manipulation of the tissues, a definite knowledge of the nerve supply to the region to be blocked with novocaine, and coöperation between the anesthetist and the operator.

5. That the preliminary use of small doses of morphine in anesthesia is of more benefit than harm, though sometimes producing postoperative emesis.

6. Much lighter ether anesthesia than is generally given is sufficient for most surgical proceedings.

A SIMPLE METHOD OF USING NEOSALVARSAN INTRAVENOUSLY IN CONCENTRATED SOLUTION.

T. H. SMITH, in the *Leucocyte* of May 15, 1914, advises a plan he has found useful.

Ravant ascertained by experiment that if neosalvarsan was dissolved in 10 or 15 Cc. of distilled water, the exact amount varying according to the dose employed, a solution was obtained which produced no hemolysis when mixed with the blood. In practice one finds that 10 Cc. of water will, with an ordinary dose of the drug, give a solution which is practically isotonic with the blood. The writer has used even a smaller quantity of water, as little as 7 Cc.

The apparatus required consists simply of a beaker, a 10-Cc. glass Luer syringe, and a 22-gauge needle. In some cases in which the veins are small a much finer gauge needle can be used.

The steps of the process are as follows:

The syringe is filled with the neosalvarsan solution, which is prepared by dissolving any size dose desired in 10 Cc. of freshly distilled water at room temperature.

The skin having been prepared, a tourniquet is placed on the upper arm, and is removed as soon as the vein has been distended.

For the past two years Smith has been using the cuff of a Tycos sphygmomanometer to distend the veins. He has found this procedure to work splendidly. The air can be released slowly and there is no jarring of the arm while the needle is in the vein, something which is apt to happen while using an ordinary tourniquet.

The needle is now inserted in the vein and the solution slowly injected. One must always be sure that the air is expelled from the syringe before the injection is made.

There is seldom any difficulty in piercing the vein, and instead of puncturing it anteriorly, it is often easier to enter the vessel from one side.

One can easily tell if the needle is in the vein. If not, the first few drops of the solution will cause swelling of the tissue and the patient will complain of pain. In cases that have very small blood-vessels it is well to first insert the needle in the vein, and when the blood commences to flow, attach the syringe.

If the procedure has been properly carried out the patient should complain of no great pain, and no swelling should appear in the neighborhood of the needle.

The advantages of this simple method of administration are as follows:

1. The whole process occupies only two or three minutes, so that the risk of oxidation of the drug is avoided.

2. By using only a small quantity of distilled water the possible occurrence of toxic symptoms, due to impurities in the water, is minimized.

3. No rubber tubing is required, and the whole apparatus, consisting of syringe, needle, and beaker, can be sterilized by boiling.

OPERATIVE TREATMENT OF FRACTURES.

GROVES (*Lancet*, Feb. 21, 1914), in an interesting clinical and experimental paper upon this subject, after pointing out the difficulty incident to making comparison between the results of operative and non-operative methods, comments instructively upon the effort made in this direction by a committee of the Surgical Section of the British Medical Association, which has, in spite of the illogical nature of the task, produced one of the most valuable contributions to the literature of fractures that has ever appeared. They have examined over 2900 cases, and not only recorded the remote results in all of these, but they have so carefully arranged and analyzed their figures that their results form a mine of information and an authoritative standard by which all subsequent fracture work can be measured, and with which it can be compared. They themselves admit that, "It is undesirable to attempt to draw any final conclusions from this material as to the relative value of operative or non-operative treatment." Taking all cases together, the non-operative methods show 70.4 per cent

good functional results, whilst the operative claim 79.1 per cent. On the other hand, the non-operative produces 11.8 per cent really bad results, and the operative 9.5 per cent. So that on this basis, which is that which shows the operative method in its least favorable light, there is this much to be claimed, that operative methods get 9 per cent more good results and 2 per cent fewer bad results than the non-operative. If the cases are divided into age groups, and only those considered above fifteen, then the results of operative are 21 per cent better than those of non-operative methods.

Such figures will be regarded very differently by different observers. If there are any who think that all fractures could be treated by the one class of method or the other, then to such it will appear very doubtful whether only 9 per cent better results for operative methods is justification for submitting 81 per cent of patients to operation, who would have done just as well without it. But to the surgeon who thinks that operations should be reserved for the more complicated types of fractures, such figures would provide both encouragement and stimulus, for they would show that operations can produce better results in complicated cases than the conservative methods do in the simplest.

The fact that out of a total of 2904 cases 2596 were non-operative and 308 operative is pretty clear evidence that at the period of observation, as only one out of every 10 cases was operated upon, these presumably were the most difficult and uncompromising types. But without some knowledge of how cases were selected for operation, the figures can afford no basis of comparison.

The great and lasting value of the fracture committee's report consists in the careful analysis of the anatomical and functional results of the large number of the non-operative cases they examined. Of the most fundamental importance is their demonstration of the dependence of good function upon perfect anatomical restoration. Good form secures good function in 90 per cent of cases, whereas moderate or bad restoration of form leads to bad function in 70 per cent.

It is particularly interesting to notice in which groups of cases the non-operative methods have given a high proportion of bad results, because this must give us a very significant indication as to the direction in which our operative activities may usually be turned in the future. The author states that he has selected those cases only of patients over fifteen years, because in general terms there is but little scope for operative treatment in any of the closed fractures of children.

Region of Fracture.	Number of Cases above 15 yrs.	Cases with Good Functional Result. Number.	Percentage.
Neck of femur.....	87	24	27
Upper third of femur.....	49	23	47
Lower end of femur.....	10	4	40
Tibia and fibula (simultaneous)	432	275	64
Pott's fracture	238	111	47
Supracondylic fracture of humerus.....	11	4	36

It is quite clear that there is great scope for improvement in all these groups, and Groves is certain that a proper operative technique could bring about this improvement in most cases. It will be noticed that five out of six of these groups are those in the operative treatment, in which he has already urged, on other grounds, the necessity of some special methods of fixation which attain the ideals of mechanical efficiency so necessary for success. The first group—that of fractures of the neck of the femur—presents a most difficult problem, which Groves does not feel at present justified in discussing. If we ask to what extent operators have attempted to deal with these groups of fractures we find clear evidence that for these very cases, in which there is so much need for improved methods, surgeons have done but little. Of primary operations on adults there have only been the following:

Neck of femur	0
Upper third of femur	0
Lower end of femur	1
Tibia and fibula	20
Pott's fracture	4
Humerus, supracondylic	0

And of these, the only group containing enough cases to consider the proportion of successes—viz., that of the simultaneous fracture of the shafts of the tibia and fibula—the good functional results have only been 13 out of 20, *i.e.* 65 per cent.

The following inferences from these figures seem to be justified: (1) In these groups of cases there is greatly needed an improved method of treating adult fractures. (2) There is not any generally accepted method of operative treatment to meet this difficulty in any of these groups, with the exception of fractures of the shafts of the tibia and fibula. (3) At the date of the report it was in that group of cases which gives the best results to non-operative methods (tibia and fibula) that there has been the greatest activity in operating, whereas in those groups where there has been the greatest failure of the old methods the new surgery has done almost nothing. (4) Even in the one class in which most operating has been done (tibias and fibulas) the results are only about one per cent better than those obtained by conservatism.

Groves thinks all these deductions from the report of the fracture committee point very strongly both to the need of the more frequent employment of operative treatment in certain groups of fracture, and also to the necessity of improving our operative methods. Progress in the treatment of fractures can only take place when all methods are mastered and applied with discrimination to suitable cases. There are two things necessary for a general improvement of results. The first is that anatomically accurate reposition of the fragments as demonstrated by the *x*-rays, should be the standard by which the treatment of each case must be judged. The *laissez faire,* or "wait and see" policy of tying a limb to a stick and trusting to luck, must be replaced by an accurate method of treatment, which only leaves the limb to nature if and when the bones are in good position. The second is that when we do operate we must employ a method which is mechanically efficient not only to bring the bones together but to hold them there firmly, whilst early movement is carried out and until solid union has occurred.

In this relation Sheen's contribution (*British Medical Journal,* Feb. 21, 1914), based on an experience of 25 cases of operation on the long bones in adults by Lane's plates and screws, and on a survey of some of the recent literature, is not without value. As to the question of operating on a fresh compound fracture, he states that the answer to this question shall not be a universal "No." When the bone has just punctured the skin and then gone back, it is best to wait until the wound is healed, retaining the broken bone in the best possible position meanwhile. Where the wound is a wide one with exposed projecting fragments, plates and screws should be used, and although there will almost certainly be more or less sepsis and they will have to be removed later, a good position is maintained, and often union in a good position results. If such a fracture is left to heal the healing may take many weeks; the operation will be difficult, through much scar tissue, to encounter perhaps irremediable deformity. As slight mobility favors callus formation, firm fixation of the fragments by plates and screws may delay it. Too little callus is adverse to union only in unhealthy subjects—for example, with syphilis, or in operations on old ununited or malunited fractures, where the reparative power of the bone is lessened. In the former the condition causing bad general health must be dealt with; in the latter some form of congestion helps union, either by letting the plated limb hang suitably supported or by the use of Bier's congestion. In non-union after plating with no obvious cause a Wassermann reaction should be taken.

Too much callus has only troubled Sheen with the femur, where with perfect asepsis and a perfect *x*-ray picture he has seen callus formation to such excess as to resemble a sarcoma of the bone. Probably this resulted from wide stripping of the peri-

osteum. It was such a case that determined him in future to try fascia lata wrapping.

This has been an almost constant trouble with the knee after plating the femur in adults—equally when he has splinted the parts and when he has practiced joint movements from the first. Sampson (cases in children) says: "Early passive movement seems to cause a secondary stiffness" (presumably of neighboring joints). This stiffness (like too much callus) may occur where there is perfect asepsis and perfect *x*-ray pictures. It requires long and persevering treatment for its removal.

No plating is satisfactory unless the bone junction is perfectly firm so that the weight of the limb can be borne by it. Bearing this in mind, is any external support necessary, and can the patient get about any earlier than with non-operative treatment? Sampson says: "No curtailment of the period usually allowed with conservative treatment is permitted." The author states that his experience is that the femur requires fixation (but not continuous fixation), as with conservative treatment. With other bones a sling or quite light support is all that is necessary. Careful massage and passive movements are commenced at the end of a week or ten days. Support must be continued for as long as with conservative treatment. "Congestion" treatment is of value after the plating of old fractures.

Apart from plating of compound fractures *per primam*, the author has only had one septic case. This was a femur in which the lower end was broken into many pieces; a plate used had to be removed; union eventually resulted. In 21 cases—some between three and four years old—the plates and screws remain in and give no trouble.

Sheen has used wire, Lambotte's apparatus, and bone collars. Nothing permits such perfect alignment and imbrication as plates and screws. Wire is obviously ineffective. It is difficult consistently to avoid sepsis with apparatus which comes from the bone to the exterior like Lambotte's. Perfect fixation may be impossible with intramedullary splints made from the patient's tibia. It may be that in some cases such an intramedullary splint coupled with the use of a plate or plates will prove the best treatment.

CANCER OF THE LOWER LIP.

BECKMAN (*Northwestern Medicine*, January, 1914) notes that the submental glands, lying in a triangle bounded by the anterior bellies of the digastric muscles and hyoid bone, drain the central portion of the lower lip. The submaxillary glands, which lie in the submaxillary triangle, bounded by the digastric muscle and the ramus of the lower jaw, drain the remainder of the lower lip as well as the anterior portion of the cheek. These triangles drain the entire lower lip, and if the glands are removed early, a complete block between the primary focus of the disease and the remainder of the body is effectually established. It sometimes happens that the submaxillary lymphatics on the side opposite the cancer become involved. While this occurs but rarely, one should remember that when the regular lymphatic channels are blocked, whether by cancer or inflammation, the lymphatic stream may flow in any direction, similar to the blood being taken up by the collateral circulation when the main trunk of a vessel is ligated. Thus it is necessary in every case to remove the lymphatics on each side at the primary operation. This should include the submaxillary salivary glands also, not because they become involved by the cancer but because it is impossible to thoroughly remove the lymph nodes and leave the submaxillary salivary glands.

After the glands from one side have been removed, they should be examined microscopically at once, and if involved with cancer the dissection should be carried down that side of the neck. This is the so-called "block dissection," and is best done by including the sternomastoid muscle, which allows better exposure and enables one to do a more thorough dissection. The dissection should include all of the glands and

gland-bearing fascia of the entire neck, including the anterior and posterior deep jugular glands. Butlin pointed out the importance of the area underneath the sternomastoid muscle and posterior to the submaxillary triangle, actually the posterior part of the submaxillary triangle, lying near the mastoid portion of the temporal bone. This is a point at which glandular recurrence following operations for cancer of the lower lip frequently takes place and which may be overlooked in making the dissection.

The principle underlying the cure of cancer of the lower lip is the same as that involving the cure of cancer in any other part of the body—that is, the primary growth along with the glands into which the area of the growth drains must be thoroughly removed at the earliest stage possible. The medical profession too long have assumed that cancer of the lower lip is not as malignant as cancers in other parts of the body, and have contented themselves with conservative measures when radical surgery was imperative. A physician who is not competent to do a thorough dissection of the neck is not fitted to treat a cancer of the lower lip.

There is one differentiation to be made between cancer of the lower lip and that in other parts of the body. A cancer of the lower lip is either a local growth or a metastasis in the adjacent glands. Beckman states that he has never seen a cancer occurring in the lymphatic vessels between the original growth and the lymphatics of the neck; consequently it does not seem necessary to remove these vessels along with the glands and primary growth. This is fortunate for both the patient and the surgeon, because it lessens the danger of infection from the mouth into the deep tissues of the neck. The original growth, however, should be removed with a wide margin, the wider the better.

In cases in which only the submaxillary and submental regions have been dissected, infection is not of serious consequence since the mouth may often be entered in these dissections, and also because infection occasionally takes place from the mouth through the cut duct of the submaxillary salivary gland. In cases in which the dissection must extend along the jugular vein to the clavicle, the author prefers to perform the operation in two stages in order to lessen the danger of infecting the entire deep tissue of the neck. The extensive skin flaps which are necessary in the block dissection heal very satisfactorily, but, if infected from the mouth, the fascia has a tendency to slough and convalescence is delayed materially.

An incision is made three-fourths inch below the ramus of the jaw from one sternomastoid muscle to the other. This incision extends through the skin and platysma muscle and is made low, in order to avoid the small branch of the facial nerves which swings down below the angle of the jaw and then returns on the face to supply the muscles about the angle of the mouth. When it is necessary to remove only a small portion of the middle of the lip, a better cosmetic result is obtained by saving these branches of the facial nerves. If, however, it be necessary to remove more of the lower lip and widen the mouth by extending into the cheek it is not necessary to save these nerves. Through this incision the skin and platysma muscle are reflected down to the hyoid bone and up to the inferior maxilla.

All of the fascia and fat, including the submaxillary salivary glands, are removed from the submental and submaxillary triangles. It is necessary to ligate both the facial artery and vein. The blood supply to the face is so abundant through the other branches of the external carotid that sloughing will not occur from this cause. The hypoglossal nerve and the lingual branch of the trifacial are exposed on each side and should be saved. After the removal of the glands this primary incision is closed, drainage being established through small separate incisions on either side. The platysma muscle is stitched first, and then the skin, with a subcutaneous suture. The

wound in the neck is carefully protected and the operation on the lip begun.

A quadrilateral section, including the full thickness of the entire lip, is removed, running down nearly to the point of the chin. The section removed should include the growth, and from one-fourth to one-half inch on either side into the healthy tissues. The coronary artery should be tied on either side. An incision is then made from the lower angle of the quadrilateral, parallel to the ramus of the jaw on either side as far as is necessary to obtain enough tissue to close the defect. The entire flap from which the new lower lip is to be made should be freed well from the bone. These flaps are sutured together in the midline with silkworm-gut sutures, the skin being approximated with horsehair. If the skin remaining over the point of the chin be so long when approximated to the new lip that it produces wrinkles. it is shortened by taking out a small triangle at one or both ends of the incision. This is the technique employed in cases in which only a small portion of the lip is removed.

If it be necessary to remove one-half or more of the lower lip, the primary incision is made in precisely the same manner. In addition to the incision running from the lower end of the quadrilateral piece along the ramus of the jaw, it is necessary to make incisions parallel to the former, extending from the corners of the mouth directly into the cheek. These incisions should extend slightly downward rather than upward. The suggestion of J. Clark Stewart to incise through all the tissues except the mucous membrane, then incise one-fourth inch higher and cut through the mucous membrane, is a valuable point in the technique, since it gives plenty of mucous membrane to stitch over the raw surface of the lower lip and thus prevents contraction of the mouth. When the flaps on each side are thoroughly free, they are approximated as in the former case, the only difference being that the raw surface of the lower lip must be covered with mucous membrane as just mentioned. It is now seen that the lower lip is shorter than the upper, and also shorter than the skin remaining on the chin. These latter two are shortened by removing triangular pieces from the extremity of each incision.

From January 1, 1907, to January 1, 1912, there were 199 patients with cancer of the lower lip observed in the Mayo clinic. This number includes only those patients having a cancer confined to the lower lip or one which had apparently originated in that location.

Considering only the patients concerning whom he had obtained definite information —that is, the 99 from whom he had received letters or who had been examined, 83 of whom are cured—he had a percentage of cures following a primary radical operation for cancer of the lower lip of 83.3. It is interesting to note the time since the operation on these 83 patients. Two were operated on one year ago; 25 between one and two years; 17 between two and three years; 20 between three and four years; 15 between four and five years; and 4 over five years. In 18 of the above number glandular involvement was demonstrated by the microscope at the time of operation, and 9 of these, or 50 per cent, are among the cured.

In another group Beckman placed 25 patients who had a late radical operation—that is, removal of the glands of the neck following one or two local operations on the lip or following treatment by paste. Twenty of these patients have been traced. Fourteen are classified as cured and six as not cured, giving 70 per cent of cures of those patients having had a late radical operation, as compared with 83.9 per cent cures of patients having had primary radical operations.

In twelve of the above 25 patients glandular involvement was demonstrated by the microscope at the time of the operation; four of these are cured. While this group of 25 is much smaller than the previous group, it is interesting to note that, when the radical operation was delayed, only a third of the patients having glandular in-

volvement were cured as compared to 50 per cent of cures in those having glandular involvement following a primary radical operation.

In five of the patients removal of the glands either as a primary or secondary operation was incomplete. These patients have been traced. In this group are cases in which an operation was attempted but abandoned because the involvement was found to be so extensive. It also includes cases in which glands were removed from but one side of the neck, the growth in the lip being confined entirely to one side. Two of these patients are well with no signs of recurrence.

In a last group, consisting of 18 cases, Beckman placed those patients having had an excision of the local growth without the removal of glands. Most of these patients were seen early in the disease, but their general condition or age prevented a radical operation. Fifteen of these have been traced, and 11 are cured, giving a percentage of 73.3 cures.

It has been stated by other observers or borne out by statistics that an early operation for cancer, although not a radical one, is often more favorable than a late radical operation. This holds true in the present series, as 73.3 per cent of the patients having an early local excision were cured as compared with 70 per cent of cures among those who had a radical operation in the late stage of the disease. There were no operative deaths in this series of cases.

ANASTOMOSIS OF THE VAS DEFERENS.

Wheeler (*British Medical Journal*, Feb. 7, 1914), having occasion to anastomose the vas deferens after division, found that if the divided ends of the channel were passed over the eye and point of a fine straight needle until they met they might be permanently approximated by a few points of suture. The needle is thereupon pushed out through the wall of the vas at a distance from the anastomotic junction, the line of suture being wrapped around with neighboring fascia to give additional strength.

FUNCTIONS OF THE THYROID, SUPRARENAL, AND PITUITARY GLANDS.

Barr (*Practitioner*, April, 1914) remarks that our knowledge of the functions of the thyroid gland has been to a large extent obtained by meddlesome surgery. He further observes that he has recently seen two men with a stolid expression, slow in thought and speech, with defective metabolism, dry skin, and high blood-pressure; that although these conditions were ascribed to the effects of a railway accident, they were in his opinion undoubtedly due to thyroid inadequacy. Leonard Williams noticed the great value of thyroid in the incontinence of urine in children, and Barr himself has found it serviceable in the troublesome micturition in the aged. Blair Bell has found it of value in cases of mastodynia, and Barr has seen hard nodular masses in the breast, due to mastitis, disappear under the use of decalcifying agents and thyroid. He has also found such a combination extremely valuable in cases of large prostate. Whenever we wish to increase the calcium metabolism, thyroid extract is of importance, hence its value in arteriosclerosis and hyperplastic conditions. Barr holds that the beneficial effect of iodine in such cases is chiefly due to its stimulating effect on the thyroid gland.

The well-marked cases of myxedema are not very common at the present day since the disease is easily recognized and thyroid treatment soon restores the patient to a more or less normal condition. As to hyperthyroidism, Barr states that even in the slightly marked cases the intelligent observer will readily detect a tendency to emotion, vasomotor disturbance, a warm moist skin, warm extremities, active capillary circulation, rather high venous pressure, rapid action of the heart and the rate easily increased by any mental excitement, the knee-jerks and all the deep re-

flexes increased; and slight muscular tremor may be appreciable. In all degrees of hyperthyroidism the urine may contain a slight amount of albumin, especially after getting up. The free lime in the blood may or may not be increased. There is always an excessive excretion, except when there is a small intake. The patient may be sharp, alert, even vivacious, but easily exhausted both mentally and physically, and so incapable of sustained effort.

In every case of hyperthyroidism a most careful effort should be made to trace any possible iodine administration. In many of these cases there is not only overaction of the thyroid, but diminished function of the suprarenal glands with dark pigmentation of the skin and low blood-pressure. In hyperthyroidism systolic pressure is fairly high, the arteries are large, and the peripheral resistance low; there is a great fall in pressure gradient with a low diastolic pressure. These great differences between the systolic and diastolic pressures mean an inefficient circulation. Soluble salts of calcium, especially when combined with adrenalin, constitutes our best remedy in hyperthyroidism. The suprarenal and pituitary secretions help to retain the lime salts in the tissues, but the pituitary should only be used when the blood-pressure is low, and there is reason to believe that the suprarenal glands are inactive.

As a rule these patients excrete lime very readily and absorb it very freely, so that there is rarely sufficient in the blood and tissues; this is one of the difficulties we encounter in treatment. Barr has found the retention of the lime salts in these cases is materially assisted not only by adrenalin, but also by the free use of sodium chloride in the diet. The blood should also be kept very alkaline, for then the lime salts are readily thrown out into the tissues. Hyperthyroidism is rather frequent in freely menstruating women, and is commonly associated with free calcium metabolism. In amenorrhea there is not only defective secretion, but defective lime salts in the blood. In dysmenorrhea the thyroid inadequacy is usually associated with excess of lime salts. In both cases thyroid extract is useful, but in the first a liberal allowance of lime salts should also be given, and perhaps the best salt in such cases is the iodide of calcium. A woman sharp of wit, voluble, and not stable is distinguished by a more active thyroid. The reason that women are not as subject as are men to arteriosclerosis is regarded by Barr as due to the active calcium metabolism and the lower blood-pressure incident to their thyroids, also to the fact that they get rid of a good deal of calcium at each menstrual period. The thyroid and pituitary in association with the ovary are the factors most concerned in the final development of the genital organs. The thyroid or pituitary insufficiency may cause the genital organs to remain infantile. Removal of the ovaries in the young tends to produce sometimes adiposity, and almost invariably overgrowth of the skeleton.

The ovarian secretion like that of the thyroid increases calcium metabolism, and removal of the ovaries has long been practiced in the treatment of osteomalacia. As to the suprarenals Glynn has shown that hypernephromata of the adrenal cortex in the case of females have caused the development of male characteristics, whilst in the case of children precocious puberty has been observed. Suprarenal inadequacy, usually due to tuberculous involvement, produces bronzing of the skin, cold extremities, low blood-pressure, muscular asthenia, and considerable emaciation. As to pituitary hypersecretion it has been shown that the anterior lobe is associated with skeletal growth. Therefore excessive activity in early life will produce giantism, and at a later period after the epiphyses are ossified, acromegaly. This excess of function is also associated with increased sexuality in the male, and, according to Blair Bell, with amenorrhea in the female. Excessive action of the infundibular portion leads to increased metabolism and carbohydrate intolerance, with the appearance of sugar in the urine, and in this respect adrenalin has an even more powerful effect. Hyperpituitarism also causes high

arterial tension, vascular degeneration, and calcium retention.

Blair Bell and Pantland Hick have demonstrated the marvelous effect of the infundibular extract in producing contraction of the intestines and uterus. In the so-called sapremia, which not infrequently occurs after parturition, it is serviceable; it indeed is most useful for the low blood-pressure and paresis of the bowel which frequently occur in pneumonia. Defective action of the anterior lobe is the cause of infantilism, and if associated with hypothyroidism there may be also a cretinoid condition. Where there is a deficient action of the infundibular portion there is great carbohydrate tolerance and low blood-pressure, associated with such conditions as dystrophia adiposis genitalis, or Dercum's disease. In the treatment of cases of pituitary deficiency by the use of the extract, we are easily guided in its employment and dosage by the blood-pressure and the freedom of the urine from sugar.

TREATMENT OF ECZEMA.

SIBLEY (*Practitioner,* April, 1914) observes that careful attention to the free action of the bowels is most essential, and often of primary importance in the successful treatment of many cases. A tablespoonful of liquid paraffin daily is an excellent intestinal lubricant, and, if this fails, a saline given the first thing in the morning will be productive of good results. A teaspoonful of a powder containing equal parts of flowers of sulphur, neutral potassium tartrate and sulphate of magnesia, given in milk, acts very well in certain conditions. In many cases modification of the diet is necessary, with the avoidance of such articles as pork, salted meats, pastry, lobsters, crabs and shellfish, highly spiced and made-up dishes, sauces, pickles, heavy English cheeses, and many fruits. All alcoholic beverages are harmful, also tea, coffee, and cocoa. Any gouty tendencies must be looked for, and appropriately treated with alkalies, etc.

Eczema in children is usually the result of digestive disturbances, from improper feeding. Overfeeding is nearly as common a cause as underfeeding. The obesity of overnourished infants, especially those fed on an excessive amount of patent foods, is often noticed. These abnormal infants are usually the pride of the young mother, or of the ambitious and ignorant nurse. The diet in these cases should be diminished and properly restricted.

With regard to the internal treatment of eczema, in general it may be said that the acute cases should be given salines, and the chronic cases diuretics. The local applications for acute cases should be lotions and powders, but for the chronic, ointments and pastes. A useful maxim is never to apply an ointment to an eczema which is moist or weeping. In other words, moist eczema should be treated locally with powders, and dry ones with ointments. An oily body, such as an ointment, should never be applied to a skin which is oozing or weeping, because the oily or fatty body will not mix with the moisture, and only tends to keep it pent up and prevent the excretion coming away, thus making the condition worse, and causing the inflammation to spread rapidly. Under certain circumstances, pastes—*i.e.,* an ointment containing a large amount of a powder such as starch or boric acid—may be used to weeping surfaces.

Eczema being essentially an inflammatory dermatosis, the remedies to be applied must always be of a soothing, not of an irritating, nature. It is only when the eczema has been of long standing, with a good deal of general thickening of the epidermis, that it is permissible to apply even a stimulating application. Usually by this time the skin has become secondarily infected by various organisms, and so it is not a simple but a complicated affection that has to be dealt with.

The general principle of a local application is to find one which, while acting as a soothing agent, will at the same time protect the part from external irritation, especially from the disturbing influences of wind, cold, dust, etc. As a rule, water should be applied as little as possible, and

never the ordinary soaps. The simplest remedy for a recent or acute eczema is to bathe or wash the part with a two- to three-per-cent boric acid lotion and then to dust the area with a powder, consisting of equal parts of boric acid, oxide of zinc, talc, and starch, to which often two per cent of salicylic acid powder, or if there is much burning or irritation, some four to six per cent of camphor powder, may be added.

THE THYMUS.

LERCH (*Medical Record*, April 11, 1914) notes that the thymus in its early embryonal state is a purely epithelial structure into which vessels and interstitial tissue grow; gradual differentiation of medulla and cortex takes place. The organ continues to grow up to the second year, and during this period it is solid and full of secretion. Involution commences at the end of the second year and progresses up to the time of puberty. A small rest of parenchyma persists embedded in Waldeyer's retrosternal thymic fat body, which preserves the form of the organ throughout life and which can be recognized as something more than a mere fat cushion to support the large vessels. Parenchymatous tissue remains until old age, hence persistence would seem to be normal, though it appears to be true that after the sixteenth year the parenchyma may disappear altogether. It bears a close relation to the thyroid and the sexual organs, since continued growth is caused by castration and great sexual activity hastens the involution of the gland in animals. The relation which exists between the thyroid and thymus is shown in the case of a hyperplastic thymus when for various reasons the thyroid is atrophied or becomes functionally insufficient.

Chronic hyperplasia is frequently found associated with goitre. It has been observed that more than 76 per cent of those who have died after goitre operations exhibited thymic enlargements. Tetany following thymectomy is not as severe as that following ablation of the thyroid and parathyroids, and according to the observations of Bash not more than one-tenth of the dogs operated upon die in tetany. This operation slows body growth and interferes with bone development, these structures remaining soft and breaking easily. Friedleben states that the thymus can regenerate itself from a small residue. Svehlo observed in 1896 that the intravenous injection of thymus extract in man and animals lowers blood-pressure and increases pulse frequency. It is true that substances lowering blood-pressure could be extracted from other organs and tissues and that therefore this action of thymus extract is not a specific one. This extract increases the coagulability of the blood and may cause thrombosis.

Paltauf described a condition characterized by hypertrophy of the whole lymphatic apparatus, the glands of the neck, the axilla, the mesentery of the intestines, the tonsils, the spleen, and the thymus. Bartels added to this syndrome the presence of a small heart, narrowness of the aorta and peripheral vessels, a large brain, degeneration of the thyroid, a small vagina, and infantile uterus, with hyperplasia of the testicles and ovaries, a condition accompanied by lowering of the resisting power of the organism. Deficiency of lime salts in bones after thymectomy is due to an excess of acid. Their precipitation is caused by alkalies, their solution by acids. It is suggested that the thymus, through nuclein synthesis, neutralizes phosphoric acid and its complicated compounds are set free in the growing portions of the organism, thus explaining the edematous condition of the central nervous system. Colloids swell in the presence of acid and water; they are found in every cell of the body, and the cells of the brain are especially rich in these substances. An excess of acid causes edema. Edematous brain is a direct consequence of acid intoxication, and acid neutralization through the function of the thymus is a life important process.

Because of the disproportion between the numerous supplying arteries and the

few veins the gland is peculiarly subject to acute hyperemia. The accompanying swelling may readily produce pressure upon the trachea sufficient to cause dyspnea. Cadaveric investigations seem to confirm the views of Waldeyer and Hamar that the thymus persists during life; that in a large number of cases it can be marked out on the chest wall without percussion, and in all with it; that it is well filled during life with blood and lymph; that its turgescence changes on change of position, less in the horizontal and more in the upright posture of the person; and that it empties itself almost completely after death. He further states that he has never examined a hysterical and neurasthenic patient in whom he did not find an enteroptosis. He traces a relation between the thymus and this condition, and as for treatment he dwells particularly on deep breathing, the wearing of a tightly fitting bandage, rest in the recumbent position, and the use of the *x*-rays and high-frequency currents. Alkalies may be given to neutralize acidity and to stimulate alkali production. Surgery is indicated when pressure symptoms develop, and may be life-saving.

ACUTE UNILATERAL HEMATOGENOUS INFECTION OF THE KIDNEY.

LEVINGS (*Urologic and Cutaneous Review,* March, 1914) reports six cases, the first a girl of twenty-two years, seized suddenly with intense pain in the right side at the costovertebral angle accompanied by chill and fever. The urine was slightly cloudy and contained a trace of albumin. The kidney was palpable and very tender. After nephrectomy the temperature dropped to normal in twenty-four hours.

The second case was in a woman forty years old. The symptoms were similar. After exploration of the gall-bladder the kidney was exposed and removed.

The third case was in a boy twelve years old, who some weeks after an appendix operation was seized with intense pain in the right kidney region, with chills and high fever. Urine cloudy and contained albumin, pus, and blood. The kidney was easily palpated, enlarged, and very tender. The condition continued to progress for ten days, when he was profoundly toxic. Recovery was prompt on removal of the kidney.

The fourth case was fifty years old. Costovertebral pain, chills and fever, with albumin, blood, and pus in the urine. The kidney was palpable and very tender.

The fifth case was characterized by similar symptoms. The urine was clear and contained neither albumin, pus, nor blood. Two days later it was more indicative of a renal condition. Temperature became normal twenty-four hours after nephrectomy.

The next case was a woman thirty-eight years old with similar symptoms. This patient recovered without operation, urotropin having been given.

TREATMENT OF SYPHILIS OF THE NERVOUS SYSTEM BY INTRATHECAL INJECTIONS.

CAMPBELL (*British Medical Journal,* March 14, 1914) after calling attention to the fact that syphilis is much the most common cause of organic disease of the nervous system, notes that when it attacks the central nervous system it gives rise to two sharply differentiated forms of disease—so-called cerebrospinal syphilis and parasyphilis. Inasmuch, however, as both forms are now known to be produced by the spirochæta pallida, the term "parasyphilis" must be abandoned. Rather should we speak of "interstitial" and "parenchymatous" syphilis of the nervous system.

In the interstitial variety the nonparenchymatous tissues of the nervous system—the meninges, the blood-vessels, the neuroglia—are primarily affected (with the production of gummata, meningitis, meningoencephalitis, meningomyelitis, endovasculitis, etc.), the neurons being secondarily involved, for example, by compression and ischemic softening. In the parenchymatous variety, of which the most frequent manifestations are general paralysis, tabes, and taboparesis, the spirochæta

toxin appears to act upon the affected neurons directly.

These two varieties of syphilitic nervous disease exhibit certain striking contrasts: The interstitial variety occurs, on an average, two and a half years after infection, though it often shows itself much earlier. It is more apt to develop after a "virulent" than a "mild" infection, evidence of gross syphilitic disease of the skin, bones, and mucous membranes being frequently forthcoming. The symptoms tend to begin suddenly, and the morbid process not infrequently remains stationary, or even retrogrades. Finally, vigorous treatment by means of mercury, potassium iodide, or salvarsan has both a powerful prophylactic and a powerful curative influence on the disease. On the other hand, the parenchymatous variety develops on an average twelve years (Head gives fourteen) after infection. It occurs for the most part after "mild" infection, and evidence of gross lesions of the skin, etc., is rarely to be obtained. The symptoms begin insidiously, and the morbid process steadily progresses to a fatal termination. Finally—and most important of all—treatment by mercury, iodide, or salvarsan has little, if any, prophylactic value, and the former two at least have practically no curative influence on the disease.

It is conceivable that the parasites, ensconced within the nerve cells of the central nervous system, might be difficult to reach with remedies. The true explanation, however, is probably to be sought for in the difficulty of getting bactericidal substances to percolate the capillaries of the central nervous system. It is probable that the spirillicidal action of mercury and arsenic is not direct, that it is effected by means of antibodies to which these drugs give rise, and that these antibodies never gain entrance to the perineuronic lymph stream. It is noteworthy in this connection that the blood of a syphilitic patient may give a strong positive Wassermann reaction, while his cerebrospinal fluid gives not the faintest response. There is, indeed, abundant evidence that the capillaries of the central nervous system are very jealous as to what substances shall be permitted to enter the perineuronic lymph stream, for of all cells of the body the neurons are the most susceptible to chemic influences. Not only are these capillaries impermeable to the substance which is responsible for the Wassermann reaction, but also to the compounds of mercury and arsenic, neither of which metals can be extracted from the central nervous system post mortem, no matter how lavishly they have been administered. It is, moreover, well known that both the central nervous system and the cerebrospinal fluid remain unstained in jaundice, and a similar absence of staining is noticeable after the intravenous injection of large quantities of trypan blue.

The problem, therefore, which confronts us in the treatment of parenchymatous syphilis is how to get the spirillicidal antibodies to enter the perineuronic lymph stream. This end can be gained by intrathecal injections of salvarsanized serum. Whether or not we accept the view of Mott—that the cerebrospinal fluid constitutes the lymph of the central nervous system—certain it is that substances introduced into the subarachnoid space do actually penetrate the central nervous system. If trypan blue be injected through a trephine hole into the cranial subarachnoid space above the tentorium cerebelli, not only the cortex cerebri but the entire cerebrospinal axis is found post mortem to be stained. If, on the other hand, the pigment be injected into the spinal subarachnoid space, by means of a lumbar puncture, the cortex cerebri remains unstained, the staining in these cases being confined to the spinal cord and brain stem. It would appear that the cerebrospinal fluid flows from the cranium spinalwards—probably in a meager current—and also that some slight ebb and flow takes place between the fluid in the subarachnoid space at the base of the cranium and the spinal subarachnoid space, in accordance with variations in the quantity of intracranial blood.

That medicaments injected into the spinal subarachnoid space do, in some measure at least, reach the cranial cavity is shown by the fact that cocaine thus introduced causes anesthesia of the entire body, so that by this means it is possible, for example, to enucleate an eyeball painlessly.

It will thus be seen that intrathecal spinal injections afford a ready means of bringing remedial agents into immediate relation with the neurons of the spinal cord and brain stem. (Quite recently Dr. Golla showed that pigment injected intrathecally actually enters the perineuronic lymph spaces.) While it is probable that the neurons of the cortex cerebri may in some degree be reached in this way, a far more effectual means of reaching them would undoubtedly be by injecting the cranial subarachnoid space.

By adopting the method introduced by Swift of the Rockefeller Institute, and carried out by Fisher of the Rockwood Hospital, Kingston, Canada, and in this country by George Robertson and Mott, of injecting salvarsanized serum intrathecally in cases of parenchymatous syphilis, no injurious results ensue, while, in many cases at least, a marked improvement of the symptoms results. The treatment adopted in the cases recorded differs somewhat from that of Swift, notably in the employment of neosalvarsan, in the much longer interval allowed between the salvarsan and intrathecal injections, and in the mode of separating the serum from the blood-clot.

The patient, prepared as for general anesthesia, is given 0.9 gramme of neosalvarsan intravenously, while at the same time a course of mercury is begun. He is kept in bed on a light diet for a couple of days. After an interval of a week the dose of salvarsan is repeated, and two hours later 4 ounces of blood are drawn off from a vein by means of a syringe and transferred to a 4-ounce bottle duly sterilized. The bottle is then placed in a jar containing a 1-in-20 carbolic solution, and set aside in a cool place. After twelve hours the serum has separated sufficiently for injection. It will be found to be somewhat stained with hemoglobin and to contain a few erythrocytes, but no harm comes from the injection of these. The advantage of allowing the clot to separate out in this way over the more rapid process of centrifuging the blood is that it offers less opportunity for septic contamination.

The serum thus prepared is injected by means of a lumbar puncture, made in the usual way, into the spinal subarachnoid space, a quantity of cerebrospinal fluid, equal to the amount of serum to be injected, being first allowed to escape. Some of this is collected in sterilized test-tubes for testing purposes, but not until the fluid runs quite clear—unmixed, that is, with any blood.

Water, distilled under personal supervision, must be employed for the neosalvarsan injection, and it need hardly be said that the intravenous and intrathecal injections must be carried out under the strictest aseptic precautions. Olive oil, which has a much higher boiling point than water, is employed for sterilizing the syringes and needles, and it has the further great advantage of not blunting the needles.

A positive Wassermann reaction of the serum may or may not be present. Even when the serum gives the reaction in an intense degree, the cerebrospinal fluid may not show the slightest reaction. The majority of cases, even with active meningitis and enormous leucocytosis of the fluid, give a negative reaction of the latter. Antisyphilitic treatment generally causes a speedy disappearance of the positive reaction, both as regards the serum and the fluid, the effect being more rapid in the latter than in the former case. In only about one-quarter of the cases of interstitial syphilis of the nervous system is there well-marked lymphocytosis of the fluid. This yields to antisyphilitic treatment.

In dementia paralytica, taboparesis, and actively progressing tabes, both the serum and the fluid practically always give a strong positive reaction. In quiescent tabes

both may give a negative reaction. In tabes a negative reaction is slightly more common for the serum than for the fluid, and the strength of the reaction is somewhat less than for dementia paralytica. A negative reaction both for the serum and the fluid practically excludes the latter disease. The spirochætæ, lodged as they are within the central nervous system, cannot be reached by the blood; hence treatment by mercury or iodide has no effect upon the Wassermann reaction either of the serum or the fluid. Salvarsan alone has little or no effect, but the intrathecal injection of salvarsanized serum causes a diminution, or even disappearance, of the reaction. This result is more easy to obtain in tabes than in dementia paralytica. The lymphocytosis is equally amenable to this form of treatment; salvarsan alone actually increases it.

In parenchymatous syphilis the intrathecal treatment is the only one yet devised which is capable of arresting the morbid process. It acts by destroying the spirochætæ within the central nervous system and the cerebrospinal fluid. The treatment should be begun as early as possible. Neurons, once destroyed, are incapable of regeneration. Unfortunately, cases of general paralysis and tabes rarely come before us until wide tracts of nervous tissue have been irretrievably damaged.

The intrathecal treatment is also indicated in cases of interstitial syphilis, especially of the spinal cord, which do not readily respond to salvarsan, mercury, or iodide of potassium. The latter drug should be given in not less than drachm doses three or even four times daily.

URINARY INCONTINENCE IN WOMEN, WITHOUT MANIFEST INJURY TO THE BLADDER.

KELLY and DUMM (*Surgery, Gynecology and Obstetrics*, April, 1914) report upon the method of treating urinary incontinence in women which in their hands has yielded excellent results. They think the affection is due to a loss of elasticity and normal tone of the vesical sphincter, so well shown by the cystoscopic picture, which in many cases presents a gaping internal sphincter orifice which closes sluggishly as the cystoscope is withdrawn. The point of vantage toward which the operative treatment should be directed is the internal orifice of the urethra and the sphincter of the bladder. The operation which has been described by Kelly may be performed under local or general anesthesia, and is as follows:

A Pezzer catheter with a stem not over 5 mm. in diameter is introduced into the bladder. With the patient in the lithotomy position and slightly elevated, the posterior wall of the vagina is retracted, and the area at the neck of the bladder is brought down by means of forceps or four tension sutures.

The next step consists in slitting the vaginal wall down to the urethra and the bladder in the median line for about 3.5 or 5 cm. The neck of the bladder should fall at about the center of the incision. The position of the bladder sphincter is easily determined at all times by moving the catheter to and fro, and feeling its head, which presses closely against the urethra. The utmost care should be taken not to cut the urethra or the bladder at any step of the operation. After making this median incision, the vagina is further detached on both sides with tissue forceps and scalpel or a blunt dissector, and dissected away for a distance of 2 to 2.5 cm. around the neck of the bladder. This may also be done with blunt-pointed scissors, which push their way into the tissues, separating the bladder from the vaginal walls. The dissection should be deepest at the neck of the bladder. With the detachment of vagina from bladder completed, the finger should be able to grasp at least one-half or two-thirds of the neck of the bladder including the contiguous urethra. Sometimes the bladder wall is so thin in the median line, due to the rupture of its muscle fibers, that its mucosa shines through.

The torn or relaxed tissues at the vesical neck should then be sutured together, using

two or three mattress sutures of fine silk or linen, passed from side to side: the first suture, taking in about 1.5 cm. of tissue, is tied at once and may be used as a tractor; the succeeding one is applied on the outside of this, further contracting and bringing together the tissues at the neck. This is the essential part of the operation, and when done the mushroom catheter should be removed. The head of the catheter escapes with a little jump as it clears the tightened, reconstructed sphincter area. The more or less redundant vaginal walls, which have been detached in order to expose the sphincter area, are now resected so that the remaining tissues can be snugly brought together from side to side, thus supporting the vesical area operated upon and avoiding dead space between bladder and vagina. This suturing is best done with a continuous fine catgut suture in one or two layers. In some cases it may be advisable to repair the relaxed posterior vaginal outlet.

The postoperative treatment is simple. The patient should not be catheterized unless it is imperative, although sometimes it must be done for several days, or even for a week. A Gatch bed with a half-way-up posture should be used immediately after operation.

Twenty cases have been operated upon for urinary incontinence, and of this number sixteen were successful. With the exception of one case in the list of patients designated as improved, all have practically complete control; yet an occasional incontinence on sudden exertion places them in the "improved" column. Communications have been received from all excepting three whose operations were performed two, nine, and thirteen years ago, respectively. They were discharged well.

There were four cases in which the operation was not successful. All were multiparæ. Three had previous operations: one, two unsuccessful plastic operations for incontinence; another, a perineal repair; the third, a vaginal suspension of the uterus, following which there was complete incontinence. Prior to operation incontinence was complete in three cases for periods varying from three to six years. The prognosis was exceedingly unfavorable in all, because of the presence of dense scar-tissue in the vaginal vault and at the site of the vesical sphincter.

CHOLECYSTECTOMY VS. CHOLECYSTOSTOMY AND A METHOD OF OVERCOMING THE SPECIAL RISKS ATTENDING COMMON-DUCT OPERATIONS.

CRILE (*Surgery, Gynecology and Obstetrics,* April, 1914) explains the mortality of common-duct operations on the basis that the nerve supply of the liver is derived from the sympathetic system, and he concludes his clinical study of the subject as follows:

Considering all the later consequences of infection, cholecystectomy in the type of cases indicated shows less morbidity than cholecystostomy. In these cases the clinical end-results of cholecystectomy are good, while in unsuitable cases cholecystostomy is followed by recurrent cholecystitis.

Crile has seen no adverse effects from cholecystectomy, provided that the division is made at the beginning of the cystic duct; that no gall-bladder tissue is left; and that the division does not at all encroach on the common duct. This technique can be readily carried out.

If acute infection be present, then in most cases cholecystostomy should be first performed, followed if required by a later cholecystectomy.

If the gall-bladder and the cystic duct be approximately normal, then the gall-bladder should be left, cholecystostomy being the operation of choice. If the gall-bladder be thick, contains much scar tissue, be shrunken, show chronic infection of the wall, be much impaired; if the cystic duct be partially or completely strictured; or if a stone be impacted in the duct—then cholecystectomy should be performed.

All gall-bladder operations, and especially common-duct operations, may be performed with a minimum of shock and

discomfort by thorough nerve-blocking with novocaine, by sharp dissection, and gentle manipulation.

The principal causes of the higher mortality in common-duct operations are the damage done to the nerve supply of the liver, and the loss of bile salts. The sharp knife dissection and the clean-cut, ample incision into the common duct, with the consequent minimum nerve injury and minimum injury to the duct and its neighborhoods, and in suitable cases the immediate closure of the common duct by suture, will immensely improve the morbidity and the mortality following common-duct operations.

The mortality rate in the 832 records studied for the purposes of this paper was 7 4/5 per cent. This mortality rate, as well as the postoperative morbidity, will be decreased by the application of the technical procedures described here.

REVIEWS.

MODERN SURGERY. By John Chalmers Da Costa, M.D., LL.D. Seventh Edition, Illustrated. W. B. Saunders Company, Philadelphia and London, 1914.

The seventh edition of this excellent text-book, dedicated to Halsted, announces in the preface that a man who has worked long and earnestly in the completion of a book has upon him a sense of disenchantment and has within him a host of misgivings. For himself he states that he has again and again been in profound perplexity as to whether an alleged discovery is a fragment of eternal truth or a nebulous emanation of chaos.

The author states that "a contemplation of the achievements of modern surgery must fill the surgical student with hope and confidence, must inspire him with the conviction that we are on the threshold of great events, and that the first few hesitating words of truth have as yet but scarce been lisped by the baby lips of Science." This and similar sentences form fitting introductions to a brilliant summarization of modern surgery as it is apprehended by the practitioner keenly alive to the movements of the time. Few have the power to so lucidly set forth this concept that it may be grasped even by the student. To the fire, enthusiasm, and scholarly knowledge of the author is added a power of concentration, of vivid description, and of clear judgment in selection which have made his book a prime favorite, and which will continue its hold in the confidence and respect of the profession. The arrangement beginning with Bacteriology, Asepsis and Antisepsis, and Inflammation and Repair, in general corresponds with that recognized as standard in text-book writing. There is a chapter on Bandages and Plastic Surgery, on Skiagraphy, the Finsen Light, the Becquerel Rays and Radium Rays and Injuries by Electricity. To Syphilis, Tuberculosis, Tetanus, and to Orthopedic Surgery separate chapters are devoted.

PSYCHANALYSIS: ITS THEORY AND PRACTICAL APPLICATION. By A. A. Brill, M.D. Second Edition. W. B. Saunders Co., 1914. Price $3.00.

In his second edition Brill has added two new chapters, further dream analyses, and additional case histories, together with a glossary of psychanalytic and psychosexual terms.

In the preface Brill "stands pat" on the principles elucidated in the first edition and pays his respects in no uncertain terms to the "blind criticism" of those who have failed to see the great light.

This volume, like its predecessor, is a well-written, systematic and clear exposition of the Freudian psychology interspersed with numerous case-reports from the writer's hospital and private practice.

The reader is advised at the outset that psychanalysis has a limited field. Those who do not have the requisite degree of education or whose character is unreliable are debarred. Moreover, patients must consult the doctor of their own volition, and those patients near or over the age of fifty do not possess sufficient psychic plasticity. Nor may one psychanalyze his relatives.

The doctor who reads will be interested to learn that "only those who are themselves free from all sexual resistance and who can discuss sex in a pure-minded manner should do psychanalytic work." He will probably conclude after a further perusal that the psychanalyst must also possess an active and vivid imagination.

Thus certain things seen in dreams are interpreted as symbols: A crowd signifies a secret (page 113); a dagger or a toe symbolizes the penis (pages 56 and 58). A patient dreams that she was inspecting a cellar belonging to an Italian woman—the cellar was exposed to the view of a man. This refers to the female genitalia (page 63). A fireplace seen in a dream is interpreted as the symbol for vagina (page 73).

Any one wishing to see the extremes to which this symbolism in dream interpretation is carried is respectfully referred to pages 55 and 56.

The reader who is interested in dream interpretation and who may wish to psychanalyze his own, will learn that "dreams accompanied by fear are of a sexual nature; the ideation carrying the fear in the dream was once a wish which was later subjected to repression." He will also learn that he has a "psychic censor" which still further complicates matters by exerting its function on the wish and producing the dream distortion.

A sexual origin is also claimed for the "unbearable ideas underlying the compulsion neuroses (obsessions, doubts, and phobias)," and the overworked and neurasthenic physician will doubtless be pleased to know that "in a normal vita sexualis no neurosis is possible."

That there is something in psychanalysis cannot be denied, but has not the pendulum swung much too far? Is not the truth in psychanalysis like the wisdom of Gratiano who spake "an infinite deal of nothing" and whose reasons were "as two grains of wheat hid in two bushels of chaff; you shall seek all day ere you find them, and when you have them they are not worth the search?" G. E. P.

THE ELEMENTS OF BACTERIOLOGICAL TECHNIC. A Laboratory Guide for Medical, Dental, and Technical Students. By J. W. H. Eyre, M.D., M.S., F.R.S. (Edin.). Second Edition, Rewritten and Enlarged. Pp. 503. W. B. Saunders Company, Philadelphia, 1913.

Probably in no department of science, more than in bacteriology, is high technical efficiency so important. Many acceptable works on bacteriology are sadly deficient in the details of technic, most of them devoting greater space to descriptive bacteriology and to the identification and differentiation of organisms; such is their particular function. In the present volume the author has striven to give a comprehensive presentation of technic useful to student and even expert laboratory worker. No one pretends to carry in his mind formulas for culture media, stains, or other reagents; it is, therefore, highly desirable that an authoritative work containing necessary details should be accessible, and to fill this need has been the writer's effort. To determine the usefulness of such a book one may systematically read it, place it accessible for consultation in practical work, or combine the two methods. The reviewer has not read all that the book contains, but has for several months tried it out as a source of information concerning formulas and the less commonly employed variations in laboratory procedures. Subjected to these tests the book has appeared to merit cordial indorsement. It contains the usual list of appliances shown by illustration and frequently in actual use. The succeeding chapter deals with sterilization. The experienced knowledge of the author and his resourcefulness are well shown in the chapter on the microscope, and especially on pages dealing with mi-

crometry; monochromatic light produced from a frosted globe by stroking it with a greasy blue pencil, and then when warm rubbing the surface with a wad of cotton-wool, is a simple and efficient substitute for the easily displaced blue-glass in the substage, and further shows the author's resourcefulness. A little more detail with regard to the fixation of tissues and the recommendation of a better clearing reagent than chloroform are minor criticisms of paragraphs dealing with histologic technic. A mounting medium so highly lauded as euparal should certainly have been mentioned. The article on media and methods of cultivation and the pages devoted to biochemical methods, in parts of which the author has been assisted by J. H. Riffel, are highly commendable.

Chapter XXII, on the study of pathogenic bacteria, embracing eight pages, is of course inadequate. It is contemplated, no doubt, that additional information should be sought in books dealing with the subject, and that it is not within the scope of the present work. The chapter on bacteriologic analysis, including examination of water and milk, milk products, meat and oysters, and the study of air, sewage, soil, filters, and disinfectants, is commendable.

On pages 334 and 335 the forms of certificate necessary for hypodermic inoculations and superficial venesections in England disclose in part at least the embarrassing position of the experimenter where antivivisection has succeeded in placing its withering influence on scientific inquiry.

The book is well printed, adequately illustrated, and the contained matter conveniently arranged. W. M. L. C.

COLLECTED PAPERS BY THE STAFF OF ST. MARY'S HOSPITAL MAYO CLINIC, ROCHESTER, MINNESOTA. W. B. Saunders Company, Philadelphia and London, 1914.

To the practicing surgeon few books are more welcome than are the collected papers by the staff of St. Mary's Hospital Mayo Clinic, nor does this present volume fall behind the high standard of practical efficiency reached by its predecessors. Among the contributors are, in addition to Charles H. and William J. Mayo, Plummer, Sistrunk, Wilson, Graham, Braasch, Beckman, and Balfour.

The Alimentary Canal, Gastric and Duodenal Ulcer, and Gastric Cancer receive major attention. A brief communication from McCarthy, based on a study of Primary, Secondary and Tertiary Migratory Hyperplasia of the Breast, amazingly clarifies a subject which has been so burdened by nomenclature as to make it difficult of comprehension. The Thyroid is given its usual thorough advanced study.

Balfour's study on the Intercarotid Paraganglion and its Tumors is an admirable summarization of our present knowledge of this body. Of major interest is Beckman's excellent paper on Decortication of the Lungs for Old Empyema. It should do much to standardize this excellent procedure.

Judd pictures a single transverse incision for use in double herniotomies. He also describes and pictures the method of exposing the lower end of the ureter. Mayo's (William J.) contributions include Operative Treatment of Cancer of the Stomach, Pathological Data Obtained from Ulcers Excised from the Anterior Wall of the Duodenum, Cholecystitis and the Factors which Control the Results of Operation, Cholecystitis without Stone or Jaundice in its Relation to Chronic Pancreatitis and to Surgery of the Pancreas, Accidental Injury to the Duodenum during the Removal of the Right Kidney.

Charles H. Mayo contributes a paper on Resection of the Rectum for Cancer with Preservation of the Sphincter; Exclusion of the Bladder, An Operation of Necessity and Expediency; Goitre in relation to its Symptoms and Pathology; Surgery of the Thyroid; The Summing up of the Goitre Question.

It is impossible to praise too highly the character of the work represented by this volume; the clear vision for the best and its prompt and skilful application are factors which have contributed to the justly earned world-wide reputation of the Mayos and their school. The pronouncements as given

forth in these volumes are perhaps the most potent single factors in the elevation of the standards of surgical efficiency.

BLOOD-PRESSURE IN MEDICINE AND SURGERY. By Edward H. Goodman, M.D. Lea & Febiger, Philadelphia and New York, 1914. Price $1.50.

One of the subjects most prominently before the profession at the present time is that dealt with in this little volume of somewhat more than two hundred pages. The volume is written by one who has worked a good deal with the clinical aspect of the subject with which he deals. Altogether there are sixteen chapters dealing, first, with the physiology of blood-pressure, then with venous pressure and capillary pressure, while Chapter III considers the various instruments of precision which are used for its estimation. Chapters IV and V deal with non-pathological variations of blood-pressure in the normal man and with hypertension and hypotension, and from this point on there is a consideration of blood-pressure in various conditions of disease which fills nine chapters. The fifteenth chapter considers the effect of drugs and other therapeutic measures on blood-pressure, and covers twenty-two pages. We wish that the author had written a longer chapter upon this important topic and that he had brought to bear his own experiences as to the relative value of the different vasodepressors. Evidently the author has not been able to satisfy himself as to the effect of digitalis in hypotension, as in one sentence he states that digitalis acts more promptly and more energetically than strychnine, but in the next paragraph raises doubt as to whether it causes any rise of blood-pressure in the face of such a circulatory state. Some of the statements made in regard to the effects of different drugs in this chapter are so brief as to be very disappointing. Strophanthus is said to produce a rise of pressure in some cases, and the action of squill is summed up in the words "Uncertain in blood-pressure-raising action." The only information after the word "caffeine" is expressed in the two words "raises pressure."

The general impression which we have received upon reading this book is that it has been rather hastily prepared and that it is largely made up of quotations from other authors rather than a noteworthy personal contribution to a very live topic. Nevertheless, those who are interested will find valuable facts and useful references to current literature in its pages.

A HISTORY OF LARYNGOLOGY AND RHINOLOGY. By Jonathan Wright, M.D. Second Edition, Revised and Enlarged. Lea & Febiger, Philadelphia and New York, 1914.

In this day of utilitarianism characterized by an eager grasping for each new fact, with the thoughtless acceptance of the fabric of medical knowledge built by laborious study through the centuries, a book of this nature comes as a refreshing novelty. The author has attempted to link together the story of the records of the nose and throat in medicine with the general drift of medical history, with the salient features in the early history of the civilization of mankind, and with the general literature which has a bearing upon the central subject of the work. He states that "having followed the story of our art over its period of three thousand years and more; from the dim and misty past of incantations and exorcisms; from the early days of Grecian civilization when Hippocrates made a specialty of medical science, separating it from the other sciences; to the days of the microscope, and the spectroscope, and the stethoscope, and the laryngoscope; when the space of one man's life is insufficient for him to know anything but the rudiments of our art in many branches, and be, at the same time, in a position to advance in any degree the boundaries of even its smallest province—we may pause with, I trust, a just consideration and appreciation of the labor of our predecessors. Our knowledge has been built up, we have seen, not by the mushroom activity of any one period, or of any one school of medicine, or by the premature birth of an idea or theory, but by the patient, painstaking, laborious exertions of many generations of earnest men, working, for

the most part, without expectation or perhaps desire, certainly without the attainment of those rewards by which not only the layman, but, alas! even the average member of our own art, measures what he calls success. To him who knows the joys of work, this phenomenon needs no explanation. To the rest of mankind no explanation would suffice."

RADIUM AND RADIOTHERAPY. Including Radium, Thorium, and Other Radioactive Elements in Medicine and Surgery. By William S. Newcomet, M.D. Illustrated. Lea & Febiger, Philadelphia and New York, 1914. Price $1.50.

Dr. Newcomet is one of the pioneer workers in roentgenology, and few persons in this country have a larger experience in regard to radioactive substances in clinical medicine and surgery than he has. The author found his chief reason for the preparation of this text in the scantiness of the literature in the English language, as compared to the literature in Germany and France, and in the general desire of his professional colleagues in this country to be more fully informed in regard to the exact limitations which surround radiotherapy.

A considerable amount of space has been devoted to the chemistry and physics of radioactive elements. This part of the subject is essential if he who expects to employ radium as a curative agent also expects to employ it rationally and to get good results. There are twenty-three chapters, the early ones dealing with the history and development of radiotherapy, and the chemistry and physics of radioactive elements, while fourteen chapters in Part II deal with its physiology and therapeutics, with special reference to the application of these substances in dermatology, ophthalmology, gynecology, malignant growths, and internal medicine. The final chapter deals with the untoward effects of radioactive substances.

The moderate price at which this book is published puts it within the reach of every one, and the author, recognizing the value of radioactive substances in treatment, is sufficiently conservative to give the reader a well-balanced dissertation upon their exact or probable value in the future.

MATERIA MEDICA FOR NURSES. By A. S. Blumgarten, M.D. The Macmillan Co., New York, 1914. Price $2.50.

If one feels surprised at the number of medical books which are published each year he must feel even greater surprise at the number of books which are brought forward for the instruction of nurses. We do not know how many nurses there are in training throughout the United States and Canada, but there must be a very large number of them who are good book-buyers to enable authors and publishers to bring out so many volumes for their edification. Dr. Blumgarten's book is probably the most ambitious of all books on Materia Medica for the Nurses' Sisterhood. It is printed on thin paper and covers almost 650 pages. Care is taken to emphasize the important points by printing them in heavier type. Much of the information which is given is that found in text-books for medical students and practitioners, and we think that the clearness with which many of the statements are made might afford a model to medical authors who prepare text-books for more advanced students. We confess that we have not known before that strychnine when taken over a long period of time produced cumulative effects. On the other hand, we thought it was one of the more fleeting remedies, although experiments which we made some years ago led us to believe that instead of becoming accustomed to its effects one becomes more susceptible as time goes on if the drug is continually administered. We believe that the statement on the part of the author that washing out the stomach with 50 per cent of alcohol is the first measure to be resorted to in carbolic acid poisoning is erroneous. Pure alcohol is the only preparation which will prevent the local corrosive action of carbolic acid, and taken internally it is too irritating and poisonous to be resorted to.

Notwithstanding these minor criticisms we have looked over the book with much interest, and will be glad to recommend it to any nurse who wishes a reliable and competent volume on this subject.

SEROLOGY OF NERVOUS AND MENTAL DISEASES. By D. M. Kaplan, M.D. Illustrated. The W. B. Saunders Co., Philadelphia, 1914. Price $3.50.

The text of the present volume has been prepared by Dr. Kaplan because all the literature on this subject in America is to be found in scattered articles, difficult to find at the moment when the information is desired. No one who has not kept himself abreast of the subject of serology for diagnostic purposes has any conception of the advances which have been made along these lines. The book contains 335 pages. Part I deals with the technique of lumbar puncture, the characteristics of the spinal fluid, and the various modifications of the Wassermann reaction with a discussion of its performance. Part II takes up the serology of nervous and mental diseases of non-luetic etiology; Part III deals with the serology of mental and nervous diseases of luetic origin; while Part IV is devoted to the therapeutic use of salvarsan. This part contains no less than 53 pages and is well worth the price charged for the entire volume. To laboratory workers, for whom, of course, the book is chiefly intended, there is a most complete bibliography at the close of the volume which extends from page 264 to 334. All clinicians who work in laboratories and receive reports from laboratories, which are serological in character, should peruse this volume in order that they may improve their knowledge of this important subject.

SURGERY: ITS PRINCIPLES AND PRACTICE. By Astley Paston Cooper Ashhurst, A.B., M.D., F.R.C.S. Illustrated. Lea & Febiger, Philadelphia and New York, 1914.

This text-book, the subject-matter of which has been covered in some 1100-odd pages, in general arrangement corresponds closely with that usually followed. The first three chapters are devoted to Inflammation and the Diseases Resulting Therefrom and Surgical Affections. Thereafter follow chapters devoted to Tumors, Surgical Technic, Injuries and Their Effects, Gunshot Wounds, Amputations, Effects of Heat and Cold, etc. Chapters devoted to Systemic and Regional Surgery follow in usual sequence. The concluding chapter being upon Surgery of the Female Genitals.

Among the features of the book are brief accurate descriptions of the surgical procedure of choice adapted to each pathological condition described, and the introduction in the text of dates of authoritative contributions by means of which original references may be more easily found.

In style the writing strongly suggests that of Dr. Ashhurst's distinguished father, Professor John Ashhurst, and indeed the author states that "much help has been derived from text-books and systems of surgery. First and foremost among these must be mentioned the Principles and Practice of Surgery of John Ashhurst, Jr.

The work is a scholarly, well-balanced presentation of the subject, and one which can be unreservedly commended to students and practitioners.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by H. A. Hare, M.D., Assisted by L. F. Appleman, M.D. Volume II, June, 1914. Lea & Febiger, Philadelphia and New York, 1914.

Our readers are probably quite familiar with the scope and intent of Progressive Medicine. Articles prepared by authorities in different lines of medical endeavor present a summary of the medical literature which is worth preserving in each volume for the past twelve months, the articles being, wherever necessary, freely illustrated. In the present issue, as in years gone by, Dr William B. Coley writes the article on Hernia; Dr. John C. A. Gerster that upon the surgery of the abdomen excluding hernia; Dr. John G. Clark reviews gynecology; Dr. Alfred Stengel, diseases of the blood, dietetic and metabolic diseases, diseases of the thyroid gland, the spleen, nutrition, and the lymphatic system; and Dr. Edward Jackson covers ophthalmology in its relationship to general medicine. The articles are all of them carefully prepared and exhaustive. Practically nothing of value in these departments of medicine which have been considered during the last twelve months has been left out, and the

physician who reads these careful commentaries may feel assured that he is thoroughly abreast of medicine as it exists at the present day.

THE READY REFERENCE HANDBOOK OF DISEASES OF THE SKIN. By George Thomas Jackson, M.D. Seventh Edition, Thoroughly Revised. Illustrated. Lea & Febiger, Philadelphia and New York, 1914.

When the first edition of Dr. Jackson's small book upon diseases of the skin appeared we prophesied that it would prove popular, and our prophecy has come true. The text is arranged alhabetically—that is, the diseases are considered in their alphabetical order. A large number of prescriptions are included to illustrate the exact measures which the author would advise in the treatment of the conditions which he describes, and enough references to dermatological literature are included to show that the author has based his text not only upon his personal experience but upon his familiarity with the literature of his subject. In other words, Jackson's Dermatology is exactly what its name indicates—a ready reference handbook of diseases of the skin, useful, therefore, to the general practitioner.

BLACK'S MEDICAL DICTIONARY. By John B. Comrie, M.A., B.Sc., M.D., F.R.C.P. Fifth Edition. Illustrated. The Macmillan Company, New York, 1914. Price $2.50.

The first edition of this single-volume so-called Medical Dictionary appeared in 1906. That it should have reached the fifth edition in eight years illustrates its value. It is not, however, a dictionary under the ordinary acceptance of that term. On the contrary, it is more of the nature of a condensed encyclopedia of less than nine hundred pages, printed in double-column and fine type, the character of the text being similar to that found in larger medical encyclopedias. Because of its size, its wide scope, and the accurate information which it gives, it can be placed on the revolving bookcase with advantage for quick reference. The colored illustrations are far better than the average, and that showing a child suffering from scarlet fever is particularly good.

CORRESPONDENCE.

LONDON LETTER.

BY J. CHARLTON BRISCOE, M.D.

The campaign to secure a pure milk supply for London has received a considerable impetus through the publicity given by a debate in the House of Commons on the subject. Many pure milk bills have been introduced in the past few years and have then been dropped, largely owing to the apathy of consumers. Now, public opinion is being roused to the dangers of a contaminated milk supply, and considerable pressure will be put upon the government to carry the measure now in preparation. The Pure Food Society of Great Britain has drawn up a careful set of rules for the guidance of farmers and dairymen who are willing to sell milk under the seal of the Society, but the great need is for compulsory inspection and certification under government supervision.

Attention has lately been drawn to the fact that many quack remedies are being sold to the public on the supposition that they possess radioactivity. Large sums have been spent in purchasing substances of no curative value—indeed, ordinary water has been sold under the false description of radium water, presumably impregnated with radium emanations. The solid radium preparations are also often quite useless, as they are made from waste products from which the pure radium salt has been extracted and only a minimal quantity of radioactivity may remain. Institutions purchasing radium itself are advised not to accept any consignment which does not contain at least 90 per cent of the pure salt of radium. The suggestion is made that

radium ought to be included in the British Pharmacopœia and scheduled as a poison under the Food and Drug Act. This would prevent the indiscriminate use of this dangerous element by ignorant or fraudulent persons.

The Poor Law Authorities are being strongly urged to grant one day's rest in seven to all nurses employed in their institutions. The Bermondsey Guardians have already adopted a scheme by which this very necessary relief can be obtained. It is hoped that the other poor law authorities will follow suit, and they will be more likely to do so, as lately there has been a difficulty in obtaining a sufficient number of nurses for the infirmaries, and it is felt that it will be necessary to make the service more attractive than it is at present. The general hospitals of London are not likely to grant their nurses a similar boon, as such a concession costs a considerable amount of money, and none of the hospitals can face the extra expenditure unless they receive more subscriptions than they do at present.

The London Insurance Committee have a difficult problem before them. Five months ago it was discovered that over 400,000 insured persons in the London area had failed to select a panel doctor, and in consequence a surplus of £140,000 had accumulated, which should have been paid out as medical benefit. The committee suggested that the surplus funds should be distributed among the panel doctors, but this procedure was held to be illegal, and the surplus is now about £200,000 for the London area. The unallotted surplus throughout the country amounts, of course, to a much larger sum. The Insurance Commissioners last autumn issued a regulation intended to legalize the proposed distribution, but this has apparently not satisfied legal opinion. The London Committee have now decided to prepare a scheme for the distribution of the unallotted money among the doctors on the panel and to take the risk of being held legally liable to make good the expenditure. There is no doubt that the doctors are morally entitled to the money, and the Chancellor of the Exchequer states that the government has always intended that the panel doctors should receive the whole sum available for medical benefit.

The twelfth century foundation known as St. Katherine's Hospital, whose reconstitution was described in a former letter, is about to set up a scheme of health visiting for the benefit of the East End poor. Queen Alexandra, the patron of the hospital, is always anxious to promote the health of mothers and children, and the health visitors will be engaged in the important work of endeavoring to reduce the high rate of infant mortality. They will visit children above the age of ten days and under one year, and they will also give advice to the mothers and thus help to prevent their physical deterioration.

A year ago the London County Council appointed an educational subcommittee to consider the vexed question as to whether instruction in sex hygiene ought to be given in the elementary schools. After careful consideration the committee have come to the conclusion that under no circumstances should instruction in sex hygiene be introduced into class teaching in elementary schools. They, however, approved of private instruction and advice in individual cases, and more especially urged that elder girls should be warned of the dangers to which they would be exposed on leaving school. The committee also draw attention to the moral dangers arising from the insufficient supervision of parks and open spaces. The committee's report together with a *précis* of the evidence will be printed and distributed among the head teachers of the public elementary schools, and it will also be available for the information of parents, teachers, ministers of religion, and others who are responsible for the welfare of adolescents. Teachers who are being trained will be instructed how to handle the difficulties of growing children.

An influential committee, composed of equal numbers of clergymen and medical men, have been engaged in investigating the claims of faith-healers, and the report just issued has aroused enormous interest. The general conclusion reached by the com-

mittee after careful investigation of cases of alleged cures by faith-healing is that no case of proved organic disease has been cured by spiritual treatment, but that cases of functional disease have frequently been largely benefited. This finding simply ratifies the value of "suggestion" in nervous diseases, and most doctors feel that they are best qualified to supply the suggestion and deprecate the calling in of a clergyman to act as a "layer on of hands." There is a sharp division of opinion, both in the Church and the medical profession, as to the desirability of calling in the clergyman as an assistant to the physician, and it is felt that any official recognition of ministerial treatment might lead to a revival of priestcraft and in some cases to a fatal neglect of the ordinary methods of treatment.

Dr. E. F. Bashford, Director of the Imperial Cancer Research Fund, gave an interesting lecture recently at the Royal Sanitary Institute on the association of cancer with chronic irritation. He described, as an instance of this association, the occurrence of cancer at the root of the right horn of draft cattle, but never at the root of the left horn. The continuous pressure of the yoke on the right horn accounted for the chronic irritation, while the left horn, which was free from pressure, was also free from disease. Dr. Bashford said that he had often been consulted by people as to the desirability of occupying a house in which cases of cancer had occurred. He always replied that he would have no objection to occupying such a house himself. Cancer was such a frequent cause of death that aggregations of cases were bound to occur frequently in the same area. Experiments with mice have shown that it is possible to double the frequency of cancer of the breast by breeding through cancerous mothers for two generations. This result, however, does not affect the general susceptibility of the animal, nor does the increased frequency apply to cancer in other parts of the body. The lecturer pointed out that research into the origin of cancer resolved itself largely into the study of the properties of progressive growth, and of these at present we know very little. The interest taken by the general public in the cancer problem has led to a demand for the compulsory notification of the disease. It is urged that the statistics, so obtained, might help to elucidate the problems of incidence due to occupation or locality. Such a proceeding, however, would mean the expenditure of a great deal of time and money, and the authorities of the Imperial Cancer Research Fund do not think that the results would justify the expenditure. They point out that a long illness like cancer would entail an elaborate system of inspection in order to prevent multiple notifications of the same case, and that at present there was no sort of agreement as to the action which should follow notification. They argue that more good would result from a campaign of education, by which people would learn the necessity for early diagnosis and would therefore be more ready to seek treatment while the chances of cure were still favorable.

The provisional programme for the forthcoming London Session of the Clinical Congress of Surgeons at the end of July has just been published. An interesting series of addresses and discussions is promised, in which many well-known surgeons will take part. The presidental chair will be taken by Dr. John B. Murphy, and the American surgeons will be welcomed by the American Ambassador.